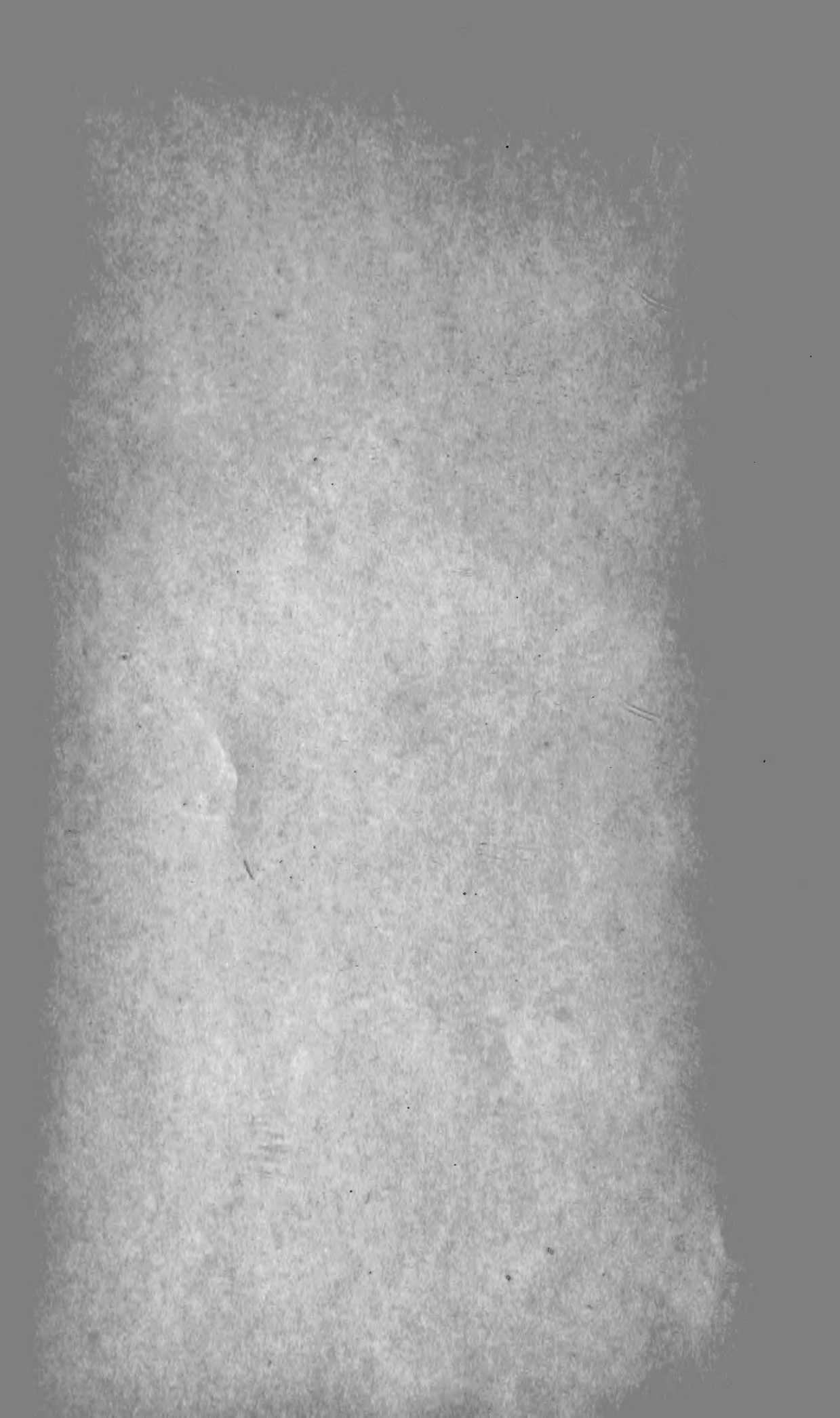
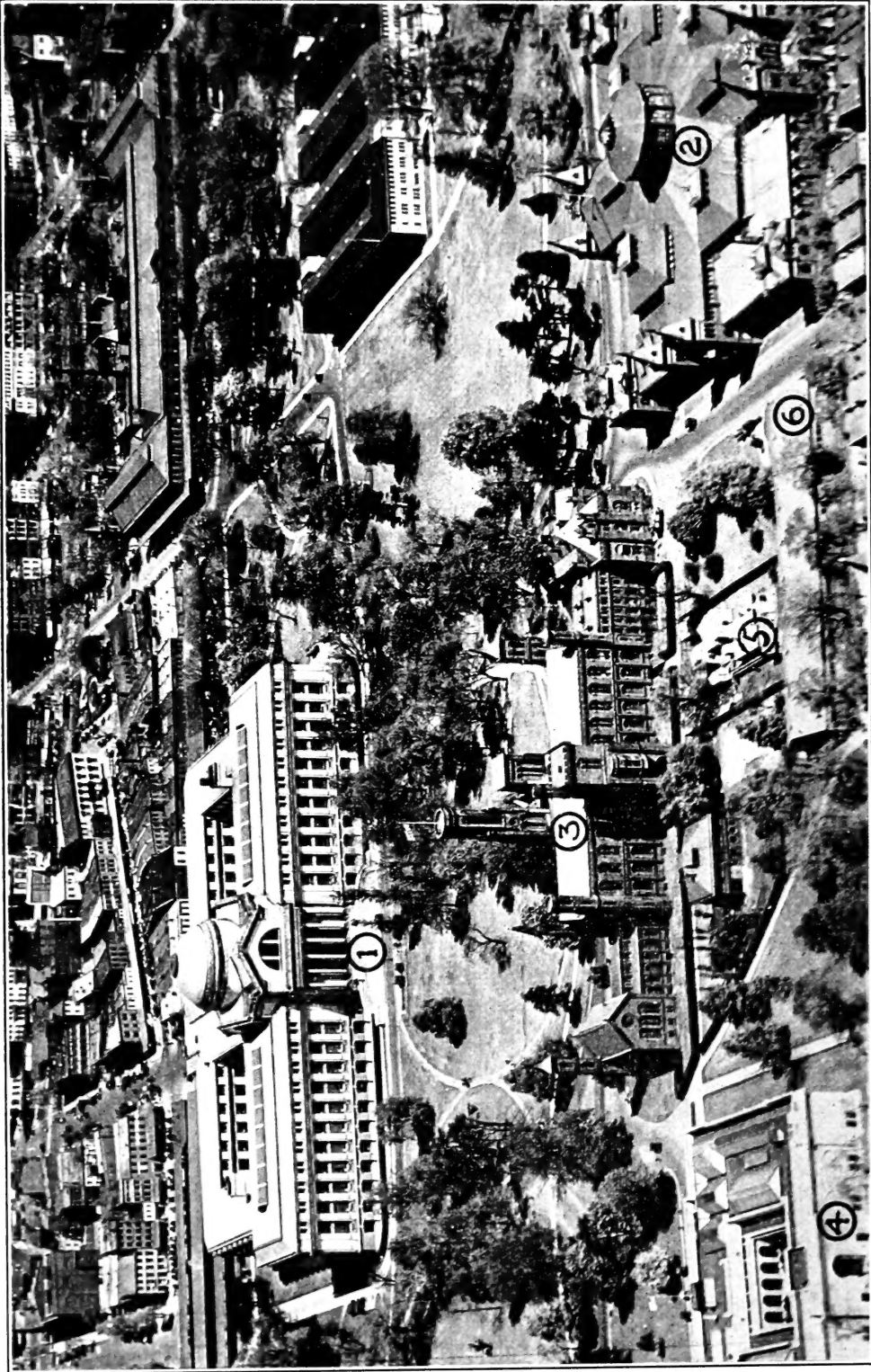


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Photograph taken by Paul Garber

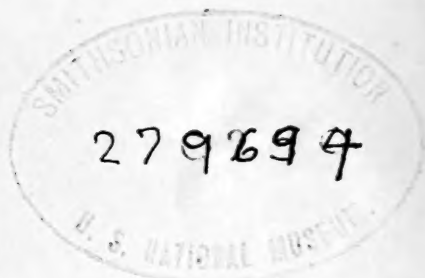
AIRPLANE VIEW OF THE SMITHSONIAN GROUNDS, SHOWING THE VARIOUS BUILDINGS

- 1. Natural History Building.
- 2. Arts and Industries Building.
- 3. Smithsonian Building.
- 4. Freer Gallery of Art.
- 5. Astrophysical Observatory.
- 6. Aircraft Building.

Courtesy of U. S. Army Air Corps

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

REPORT ON THE PROGRESS AND CON-
DITION OF THE UNITED STATES
NATIONAL MUSEUM FOR THE
YEAR ENDED JUNE 30, 1928



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON
1928

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UNITED STATES NATIONAL MUSEUM,
UNDER DIRECTION OF THE SMITHSONIAN INSTITUTION,

Washington, D. C., October 15, 1928.

SIR: I have the honor to submit herewith a report upon the present condition of the United States National Museum and upon the work accomplished in its various departments during the fiscal year ended June 30, 1928.

Very respectfully,

ALEXANDER WETMORE,
Assistant Secretary.

DR. CHARLES G. ABBOT,
Secretary, Smithsonian Institution.

Library of the National Museum
Smithsonian Institution
Washington, D.C. October 15, 1928

The honor to submit herewith a report upon the present
condition of the United States National Museum and upon the work
accomplished in its various departments during the fiscal year ending
June 30, 1928.

Very respectfully,
Alexander Wetmore,
Director.

WALTER D. HAYDEN,
Secretary of the Smithsonian Institution.

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THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 309

LECTURE 10

THE HADRONIC SPECTRUM

PROFESSOR [Name]

ASSISTANT PROFESSOR [Name]

LECTURER [Name]

TOPIC: THE HADRONIC SPECTRUM

DATE: [Date]

TIME: [Time]

LOCATION: [Location]

LECTURE 10

THE HADRONIC SPECTRUM

PROFESSOR [Name]

ASSISTANT PROFESSOR [Name]

LECTURER [Name]

TOPIC: THE HADRONIC SPECTRUM

DATE: [Date]

TIME: [Time]

LOCATION: [Location]

STAFF OF UNITED STATES NATIONAL MUSEUM

[June 30, 1928]

CHARLES G. ABBOT, Secretary of the Smithsonian Institution, keeper *ex officio*.
ALEXANDER WETMORE, Assistant Secretary, Smithsonian Institution, in charge
United States National Museum.
WILLIAM DE C. RAVENEL, Administrative Assistant to the Secretary.

SCIENTIFIC STAFF

DEPARTMENT OF ANTHROPOLOGY:

Walter Hough, head curator.

Division of Ethnology: Walter Hough, curator; H. W. Krieger, curator, H. B. Collins, jr., assistant curator; J. W. Fewkes, collaborator; Arthur P. Rice, collaborator; Isobel H. Lenman, collaborator.

Section of Musical Instruments: Hugo Worch, custodian.

Section of Ceramics: Samuel W. Woodhouse, collaborator.

Division of American Archeology: Neil M. Judd, curator; R. G. Paine, aid.

Division of Physical Anthropology: Aleš Hrdlička, curator; Thomas D. Stewart, aid.

Collaborator in anthropology: George Grant MacCurdy.

Associate in historic archeology: Cyrus Adler.

DEPARTMENT OF BIOLOGY:

Leonhard Stejneger, head curator; James E. Benedict, assistant curator.

Division of Mammals: Gerrit S. Miller, jr., curator; A. J. Poole, scientific aid; A. Brazier Howell, collaborator.

Division of Birds: Robert Ridgway, curator; Charles W. Richmond, associate curator; J. H. Riley, assistant curator; Alexander Wetmore, custodian of alcoholic and skeleton collections; Edward J. Brown, collaborator; Casey A. Wood, collaborator, Arthur C. Bent, collaborator.

Division of Reptiles and Batrachians: Leonhard Stejneger, curator; Doris M. Cochran, assistant curator.

Division of Fishes: Barton A. Bean, assistant curator; E. D. Reid, aid.

Division of Insects: L. O. Howard, honorary curator; J. M. Aldrich, associate curator; William Schaus, honorary assistant curator; B. Preston Clark, collaborator.

Section of Hymenoptera: S. A. Rohwer, custodian; W. M. Mann, assistant custodian; Robert A. Cushman, assistant custodian.

Section of Myriapoda: O. F. Cook, custodian.

Section of Diptera: J. M. Aldrich, in charge; Charles T. Greene, assistant custodian.

Section of Coleoptera: E. A. Schwarz, custodian; L. L. Buchanan, specialist for Casey collection of coleoptera.

Section of Lepidoptera: Harrison G. Dyar, custodian.

Section of Orthoptera: A. N. Caudell, custodian.

Section of Hemiptera: W. L. McAtee, acting custodian.

Section of forest tree beetles: A. D. Hopkins, custodian.

DEPARTMENT OF BIOLOGY—Continued.

Division of Marine Invertebrates: Waldo L. Schmitt, curator; C. R. Shoemaker, assistant curator; James O. Maloney, aid; H. K. Harring, custodian of the rotatoria; Mrs. Harriet Richardson Searle, collaborator; Max M. Ellis, collaborator; William H. Longley, collaborator; Maynard M. Metcalf, collaborator; Joseph A. Cushman, collaborator in Foraminifera.

Division of Mollusks: Paul Bartsch, curator; William B. Marshall, assistant curator; Mary Breen, collaborator.

Section of Helminthological Collections: C. W. Stiles, custodian; M. C. Hall, assistant custodian.

Division of Echinoderms: Austin H. Clark, curator.

Division of Plants (National Herbarium): Frederick V. Coville, honorary curator; W. R. Maxon, associate curator; Ellsworth P. Killip, associate curator; Emery C. Leonard, assistant curator; Albert C. Smith, collaborator.

Section of Grasses: Albert S. Hitchcock, custodian.

Section of Cryptogamic Collections: O. F. Cook, assistant curator.

Section of Higher Algae: W. T. Swingle, custodian.

Section of Lower Fungi: D. G. Fairchild, custodian.

Section of Diatoms: Albert Mann, custodian.

Associates in Zoology: C. Hart Merriam, W. L. Abbott, Mary J. Rathbun, David Starr Jordan.

Associate Curator in Zoology: Hugh M. Smith.

Associate in Botany: John Donnell Smith.

Associate in Marine Sediments: T. Wayland Vaughan.

Collaborator in Zoology: Robert Sterling Clark.

DEPARTMENT OF GEOLOGY:

George P. Merrill, head curator; Margaret W. Moodey, aid.

Division of Physical and Chemical Geology (systematic and applied):

George P. Merrill, curator; E. V. Shannon, assistant curator.

Division of Mineralogy and Petrology: F. W. Clarke, honorary curator;

W. F. Foshag, assistant curator; Frank L. Hess, custodian of rare metals and rare earths.

Division of Stratigraphic Paleontology: R. S. Bassler, curator; Charles E. Resser, associate curator; Jessie G. Beach, aid.

Section of Invertebrate Paleontology: T. W. Stanton, custodian of Mesozoic collection; Paul Bartsch, curator of Cenozoic collection.

Section of Paleobotany: David White, associate curator.

Division of Vertebrate Paleontology: Charles W. Gilmore, curator; James W. Gidley, assistant curator of mammalian fossils.

Associate in Mineralogy: W. T. Schaller.

Associate in Paleontology: E. O. Ulrich.

Associate in Petrology: Whitman Cross.

DEPARTMENT OF ARTS AND INDUSTRIES, AND DIVISION OF HISTORY:

William deC. Ravenel, director.

Divisions of Mineral and Mechanical Technology: Carl W. Mitman, curator; Paul E. Garber, assistant curator; F. A. Taylor, aid; Chester G. Gilbert, honorary curator of mineral technology.

Division of Textiles: Frederick L. Lewton, curator; Mrs. E. W. Rosson, aid.

Section of Wood Technology: William N. Watkins, assistant curator.

Section of Organic Chemistry: Aida M. Doyle, aid.

DEPARTMENT OF ARTS AND INDUSTRIES, AND DIVISION OF HISTORY—Continued.

Division of Medicine: Charles Whitebread, assistant curator

Division of Graphic Arts: R. P. Tolman, assistant curator.

Section of Photography: A. J. Olmsted, custodian.

Loeb Collection of Chemical Types: O. E. Roberts, jr., curator.

Division of History: T. T. Belote, curator; Charles Carey, assistant curator;
Mrs. C. L. Manning, philatelist.

ADMINISTRATIVE STAFF

Chief of correspondence and documents, H. S. Bryant.

Superintendent of buildings and labor, J. S. Goldsmith.

Editor, Marcus Benjamin.

Engineer, C. R. Denmark.

Disbursing agent, N. W. Dorsey.

Photographer, A. J. Olmsted.

Property clerk, W. A. Knowles.

Assistant librarian, Isabel L. Towner.

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REPORT OF THE PROGRESS AND CONDITION OF THE UNITED STATES NATIONAL MUSEUM FOR THE YEAR ENDED JUNE 30, 1928

By ALEXANDER WETMORE
Assistant Secretary, Smithsonian Institution

FOREWORD

The Congress of the United States in the act of August 10, 1846, founding the Smithsonian Institution, recognized that an opportunity was afforded, in carrying out the design of Smithson for the increase and diffusion of knowledge, to provide for the custody of the Museum of the Nation. To this new establishment was, therefore, intrusted the care and development of the national collections. At first the cost of maintaining this activity was paid from the Smithsonian income; then for a time the Government bore a share; but since 1877 Congress has provided for the expenses of the Museum.

The museum idea was fundamental in the organic act establishing the Smithsonian Institution, which was based upon a 12 years' discussion in Congress and the advice of the most distinguished scientific men, educators, and intellectual leaders of the Nation during the years 1834 to 1846. It is interesting to note how broad and comprehensive were the views which actuated the Congress in determining the scope of the Museum, a fact especially remarkable when it is recalled that at that date no museum of considerable size existed in the United States, and the museums of England and of the continent of Europe, although containing many rich collections, were still to a large extent without a developed plan.

The Congress which passed the act of foundation enumerated as within the scope of the Museum "all objects of art and of foreign and curious research and all objects of natural history, plants, and geological and mineralogical specimens belonging to the United States," thus indicating the Museum at the very outset as the Museum of the United States and as one of the widest range in its activities. It was appreciated that additions would be necessary to the collections then in existence, and provision was made for their increase by the exchange of duplicate specimens, by donations, and by others means.

The maintenance of the Museum was long ago assumed by Congress, the Smithsonian Institution taking upon itself only so much

of the necessary responsibility for its administration as is required to coordinate it with its other activities. The Museum as a part of the Smithsonian is an integral part of a broad organization for increase and diffusion of knowledge, for scientific research, for cooperation with departments of the Government, with universities and scientific societies in America, and with all scientific institutions and men abroad who seek interchange of views with men of science in the United States.

Since 1846 the only material changes in the scope of the National Museum have been (1) the addition of a department of American history, intended to illustrate, by an appropriate assemblage of objects, important events, the domestic life of the country from the colonial period to the present time, and the lives of distinguished personages, and (2) provision, in 1920, for the separate administration of the National Gallery of Art as a coordinate unit under the Smithsonian Institution. From 1906 to 1920 the gallery was administered as the department of fine arts of the Museum.

The development of the Museum has been greatest in those subjects which the conditions of the past three-quarters of a century have made most fruitful—the natural history, geology, ethnology, and archeology of the United States, which have been supplemented extensively by collections from other countries of the world. Opportunities for acquisition in these various directions in the first years of the institution were mainly brought about through the activities of the scientific and economic surveys of the Government, many of which have been the direct outgrowths of earlier explorations stimulated or directed by the Smithsonian Institution. Additions from these sources still continue in large volume. As supplemental to them an increasing number of persons interested in science make annual additions to our collections either directly or through financial support of expeditions by members of the staff. The increment of material from these contributions increases annually and is greatly appreciated. Such outside aid brings material that is of the greatest importance and that often could be obtained in no other way.

The Centennial Exhibition of 1876 afforded opportunity for establishing a department of industrial arts, which has received great impetus recently through the cooperation of industrial firms and associations, particularly in the assembling of material illustrative of historical development in various lines.

The historical series has been greatly augmented since 1918 by large collections illustrative of the World War, and also by extensive additions to exhibits in aircraft and kindred subjects that have been received during this period.

Public interest in the growth and development of the National Museum is reflected by the steady increase of recorded attendance, in correspondents, and in requests for information.

OPERATIONS OF THE YEAR

APPROPRIATIONS

Provision for the maintenance of the National Museum for the fiscal year ended June 30, 1928, was made in the following regular items of appropriation carried in the executive and independent offices act approved February 11, 1927:

Preservation of collections.....	\$473, 510
Furniture and fixtures.....	26, 500
Heating and lighting.....	79, 500
Building repairs.....	13, 000
Books.....	1, 500
Postage.....	450
Printing and binding.....	44, 000
Construction of gallery in National Herbarium.....	12, 500
	<hr/>
	650, 960

The total represents the sum of \$41,640 above the appropriation available for the year 1926. The increase of \$23,510 under the principal appropriation, that for preservation of collections, provided a one-rate promotion for the staff, in accordance with efficiency attained in the performance of duty as indicated in the annual survey and rating of the efficiency of all employees, the first promotion of the kind that has been possible under the salary roll of this appropriation since the classification act was put in effect on July 1, 1924. The total required for these salary increases was \$19,070. The result of these additions to salaries has been appreciably apparent in the increased morale of the personnel and has reacted most advantageously to the Museum. Of the sum remaining, \$2,280 was required for additions to the salary roll through reallocations made by the Personnel Classification Board. The remainder of \$2,160 was allotted to the purchase of specimens required for the collections, miscellaneous supplies, and expenditures for freight. The additional amount for the purchase of specimens has been especially important, since it has brought in highly valuable material of great scientific importance that otherwise could not have been secured.

Of the increase of \$2,770 for furniture and fixtures, \$770 was provided for new curtains in the south and west exhibition halls in the Natural History Building, where there is necessity to soften the light during bright days to prevent deterioration in specimens on exhibition, and where the curtains in use, through age, were

no longer serviceable. The remaining sum of \$2,000 was provided for materials used in the storage of the study collections, principally for additional drawers for the insect collections, and for jars, vials, trays, and boxes for general use. The sum of \$1,360 added to the appropriation for heating and lighting was provided by Congress for a one-rate increase to the employees on this salary roll, a well-merited promotion, and, as in the previous case mentioned, the first that has come to this group. Of \$1,000 under the amount provided for building repairs, \$60 came for a minor promotion in the case of one employee, and the sum of \$940 was provided to cover in part replacement and repair on the concrete roadway on the east side of the Natural History Building, which comes under our care for maintenance. The amount of \$500 additional allotted to the provision for printing and binding brought a needed increase to \$44,000 in that important matter.

A special appropriation of \$12,500 was made to cover the construction of a gallery over the west end of the great hall housing the collections in the division of plants. Congestion in these collections had become extreme as herbarium cases filled the aisles, the cases were badly crowded, and there was an accumulation of over 200,000 plants that could not be placed in their proper folders in the herbarium. Construction of this gallery, which was completed during the year, practically doubled available space for plants and permitted a proper expansion of the collection, besides affording proper working conditions for the specialists who use these halls. This gallery, next to the provision for increased salaries, is the most important improvement that addition in appropriations has permitted for the year.

Increases to the salary rolls for promotions under the appropriation for the year here under consideration, together with further additions through the appropriation for 1929, and the Welsh Act, which are available as this report is written, have placed the staff of the National Museum generally in greatly improved economic situation, and have thus produced greater efficiency in the work of the Institution. To carry out the intent of the reclassification act there is required arrangement for further general increase which will place those of the staff with proper efficiency rating at the average rate in their respective grades. There are also several groups, particularly among the skilled mechanics, where the Personnel Classification Board, recognizing that the persons in question were being paid at lower rates than in other governmental departments has given a reallocation to a higher position. As these persons were at the average pay in their old grades this reallocation has brought no increase in salary, since the entrance in the new grade is equivalent

to the average in the old. Definite provision should be made here for promotion.

It is earnestly urged that further additions to the appropriations for all salary rolls may be made until the various groups of salaries attain the averages provided by law. Such action is eminently and properly the reward for conscientious performance of duty on the part of the staff, and will react wholly to the advantage of the Institution.

The matter of additional personnel is one of considerable importance as there is growing necessity for further workers both on the scientific staff and in the clerical forces. The National Museum through the many years of its growth has developed along broad lines and maintains extensive collections in many branches. There are several groups of animals where large collections are available with no specialist in charge, a condition that should be remedied promptly. Further, there are a number of divisions where assistants should be provided for older men now in charge who should be in a position to train others in proper methods to carry on when they themselves are gone. Clerical assistance is at a minimum when the volume of work to be covered is considered, and there is need for more employees of this group to relieve scientific workers of routine work in cataloguing and thus permit them to devote their time more fully to important scientific investigations. It is now necessary annually to procure the temporary services of additional cataloguers, typists, and laborers to assist in the work of the divisions. These persons should be on the permanent rolls as the work required is specialized and requires considerable training for proper performance which it is not possible to give in a period of limited employment.

Congestion in the present space occupied by the National Museum collections increases annually in spite of directive effort to select for preservation only the objects that must be kept and to eliminate material that is not permanently desired. It is imperative to take important collections when they are available as opportunity to secure them may never offer again. As an asset of the Nation the collections of the National Museum should be made as complete as possible while lacking materials are still procurable. In the last 10 years the exhibition halls devoted to arts and industries and to history have become increasingly more crowded until in many instances there has been brought about decided incongruity in association of exhibits because of need that has arisen for the acceptance of valuable things that when on hand must be afforded space. Exhibits of animals have been curtailed to make way for historical objects, and space designed for anthropology has been preempted for displays of objects of art. In the entire museum the collection of plants is

now practically the only research unit that has available a requisite amount of floor space to afford proper handling. In the last 10 years there has been gradual utilization of the halls that serve as passage ways until now cases for the storage of study specimens line the walls and to some extent close these passage lanes. The situation is such that the limit of expansion is practically reached and a number of divisions are already urgently in need of more space for their research collections than is assigned to them.

The study collections as a whole will grow annually at a steady rate that will not decrease for a considerable period of years at least. Though to one with casual knowledge it might appear that one or two examples of each kind are sufficient it is actually true that good series are imperative for the investigations of the talented workers to whom we look for increase in knowledge concerning the things about us. It is found on close examination that individual insects, birds, mammals, fossils, plants, mollusks, or in fact any other natural materials or organisms, differ from each other in form, color, dimension, and structure, so that a series of specimens is required to show the characters of a single species. Frequently when specimens supposedly the same from a wide geographic range are compared it is found that two or more forms are represented. Scientists and laymen alike properly look to the National Museum for extensive material to demonstrate all these points, some of which may seem to have no particular importance at the time but all of which inevitably are found eventually to possess some utilitarian value. Our study collections should be the largest and most extensive in the country.

From what has been said it will appear that further housing for the National Museum is imperative. The collections in arts and industries are found at present in the old National Museum, a building that when it was completed in 1881 was a model of its kind for the world, but with modern progress is now as much out of date as vehicular transportation or the average manufacturing process of that day when compared with present methods. Further, though carefully constructed originally, at an age of 47 years it is becoming somewhat of a problem to keep it in proper condition, and before long some expensive renovations must be contemplated if it is to be retained. This building should be replaced now by one of modern design that will afford a much greater area of floor space, with halls properly designed in form to meet modern needs. The new building should stand in part on the site occupied by the old one but will need to cover considerably more ground to provide for our need. Modern advances in manufacturing processes are tremendous and so overshadow the modest beginnings of some of our industries that

they will be completely forgotten by the coming generation. There should be preserved in the National Museum exhibits to show the essential steps in the development in all branches of transportation, engineering, and commerce. These will have inestimable value in affording material studies on which further advances may be made and in the education of our modern youth.

The ultimate construction of a National Gallery of Art to which the art collections will be removed will free a certain amount of space in the Natural History Building, but that area will be automatically absorbed by the natural history exhibits retired to make room for art, and will not afford necessary relief. There should be added to the Natural History Building two wings, one on the east and one on the west, in accordance with the original plan of the architect for this structure. These, with the same height as the present building, will give needed space for the tremendously valuable research collections and will relieve crowded laboratories, which in the division of insects, for example, have become almost intolerable because of the increasing number of persons necessarily engaged in important researches on these collections, so that in some instances at present four persons depend upon the light from a single window for illumination for work requiring delicate examination, frequently under the microscope. The additional floor space would also afford a more logical arrangement of exhibits, a remodeling of many in more modern form, which can not be attempted at present, and a relief from present crowding, which is often tiring and confusing to the visitor.

The division of history, one of the greatest importance to every patriotic American, with its wonderful series of memorabilia of those to whom we owe our country and our freedom, its collections of weapons, war materials, historical objects of all kinds, and extensive series of coins and stamps, at present has its exhibits distributed through the Natural History, and the Arts and Industries Buildings, in a manner wholly incongruous to orderly display. There should be provided for it a separate building where its treasures may be adequately shown for the admiration and reverence of our people for generations to come. Certainly all these historic objects, not to be duplicated at any price, should be displayed under the best of conditions as a monument to those whom they represent and to previous generations in our Nation.

Existing appropriations are taken up so largely with necessary routine expenditures that there is little available to be used in exploration and field work. Many interested friends and correspondents make great additions to our collections annually, but the Museum should be provided with adequate funds that would enable

it to develop various field researches along logical and continuing lines. Further, there come to the Museum frequent reports of valuable specimens that may be had if some one competent can go to the spot to obtain them. These are usually of such nature that they can not be collected and sent in by the inexperienced as unless properly handled they are not worth the cost of transportation, though when properly prepared they are highly valuable. At the present time this material is usually lost, though for a comparatively small expenditure it might be preserved. Funds that may be used for such purposes and for field work in general are urgently needed.

It may be added that in the United States to-day there is an increasing part of the population that is definitely interested in science. This is shown in the present demand for authentic scientific news on the part of the press, for photographs of interesting scientific objects for publication, and by the general attitude of the public. As our country grows there develops an increasing group of those financially independent who turn to scientific researches and investigations either as recreation or with serious desire to assist in addition to human knowledge, and who find in scientific matters relaxation and inspiration, recreation, and serious endeavor. This group now assists tremendously in the furtherance of scientific development and will be an increasing force in that direction in the future. These persons from their financial situation make large contributions toward the Federal income in the form of taxes, wherefore it would seem logical to make a part of this money available for support of their immediate interests in the form of increased appropriations for the National Museum.

COLLECTIONS

Additions to the collections during the fiscal year in number are far above those of last year, and constitute a tremendous mass of materials. The increments were covered in 1920 separate accessions which included the enormous total of 832,912 separate objects. The specimens indicated were divided among the various departments as follows: Anthropology, 4,414; biology, 680,350; geology, 112,747; arts and industries, and history 35,401. The total increase for last year came to 402,531, which was considerably above the average for recent years.

The large total of additions for the year 1928 has been due principally to extensive collections that have come to the department of biology, notably the C. F. Baker collection of insects of approximately 300,000 specimens, including one of the finest gatherings extant from the Philippine Islands, received by bequest from Professor Baker; over 50,000 specimens of land shells collected by C. R. Orcutt

in Jamaica, purchased through the Frances Lea Chamberlain fund; and the C. G. Lloyd mycological collection, comprising 75,000 specimens of the larger fungi, transferred to the Smithsonian Institution by the trustees of the Lloyd estate.

The single object of greatest popular interest that has come to the National Museum in many years is Colonel Lindbergh's airplane, the *Spirit of St. Louis*, which has drawn large crowds since the day of its deposit with the Smithsonian Institution. In anthropology there may be mentioned especially the material secured by Henry B. Collins, jr., and T. Dale Stewart, representing the culture of the Eskimo of Nunivak Island; collections representative of Indian culture in the Dominican Republic, secured by H. W. Krieger under funds provided by Dr. W. L. Abbott; and specimens collected by Dr. F. H. H. Roberts, in work for the Bureau of American Ethnology in the West. The department of geology has obtained valuable additions to the ore and mineral collections through Dr. W. F. Foshag's travels in Mexico, and to the mineral collections through purchases from the Roebing fund. There may be mentioned also the gift of the private collection of Dr. August F. Foerste, of Dayton, Ohio, of American paleozoic invertebrates, consisting of material of high importance, and especially the Frank Springer collection of Echinoderms, one of the finest known, which was transferred by bequest at the death of Doctor Springer. Complete accounts of these and other specimens received will be found in the reports of the head curators which follow.

There were received during the year 1,481 lots of material for examination and report, the larger part being of geological and botanical nature, and the aggregate number of specimens included large. Some of this was returned to the senders by request, a part was added to our collections, and a part discarded as not valuable for preservation.

During the year 6,267 specimens were sent out as gifts, mainly to schools and other educational institutions. Included in these were 12 sets of mollusks of 149 specimens each, 25 sets to illustrate soil formation through the weathering of rock, each consisting of 16 individual specimens, 4 sets of echinoderms of 6 specimens each, and 4 sets of fishes of 54 specimens, and 2 of 73 specimens each. Exchanges of duplicate material with other institutions and individuals amounted to 33,724 specimens. There were 25,145 specimens, many of them highly valuable, loaned for study to workers outside of Washington. The handling of this material, both in sending and on return, constitutes a tremendous task requiring much time and attention.

The following statement of specimens now covered in the Museum catalogues will be of interest:

Anthropology-----	672, 173
Biology-----	8, 327, 666
Geology-----	2, 003, 002
Arts and industries-----	105, 889
History-----	385, 548
Total-----	11, 494, 278

EXPLORATION AND FIELD WORK

Researches in the field in various branches of science have continued during the year through funds presented by friends of the Institution, from limited sums provided by appropriations, or from the private income of the Smithsonian, and through a variety of cooperative arrangements. It is highly important that more money be made available for these purposes since many valuable projects may not now be taken up because of lack of funds. Much good may be accomplished with comparatively little outlay. A brief account of activities of the present year follows:

In the Alaskan field Henry B. Collins, jr., and T. Dale Stewart, under funds supplied by the American Association for the Advancement of Science, the Council of the Learned Societies, and the United States National Museum prosecuted during the summer of 1927 an important piece of exploration on Nunivak Island on the Bering Sea coast of Alaska. Explorations of several ancient village sites were carried on in connection with anthropological measurements of the natives, and observations on their social life. In addition much anthropological material was gathered during the landings along the coast on the journey to the site of the season's investigations. The material secured includes an excellent series of skeletal remains and numerous valuable objects of material culture.

Herbert W. Krieger, through a grant from the National Academy of Sciences, and funds supplied by the Bureau of American Ethnology, visited the old site at Bonasila, Alaska, for remains that had attracted Doctor Hrdlička's attention the year before. Unforeseen high water in the Yukon prevented complete examination, but important information and specimens dealing with ancient Eskimos were obtained. He also collected ethnologica from Eskimo in several villages on the Yukon. During this same season Mr. Krieger continued archeological investigations along the Columbia and Snake Rivers, bringing in many specimens, some of which, from the Snake, appear to represent an outlying site of Pueblo Indian culture.

Neil M. Judd, on detached detail, worked for the seventh field season at Pueblo Bonito, in Chaco Canyon, N. Mex., as director of

the National Geographic Society's archeological exploration of that ancient pueblo. Through the interest of the society there has been uncovered, and set in order for inspection of the public, one of the largest pueblos of the Great Period as it stood perhaps 1,000 years ago. Mr. Judd was occupied this season principally in obtaining final data for incorporation in his report. The investigations as a whole have given extensive and valuable series of objects dealing with comparatively late Pueblo culture which through the generous gift of the National Geographic Society have greatly enhanced the Museum collections in the Pueblo culture of the southwest.

At the close of the fiscal year Mr. Judd was in the field for the Bureau of American Ethnology, examining caves in Russell County, Ky., where textiles and other interesting specimens had been exhumed.

Dr. Aleš Hrdlička, traveling partly under a grant from the Smithsonian Institution and partly at personal expense, in the autumn of 1927 was in Europe for seven weeks for the purpose of viewing the latest discoveries in early man. He examined sites of important finds in southern France, and then proceeded to Belgium and later to Germany, where he made special point of visiting the localities in the Neander Valley typical for the race of Neanderthal man. In southern Moravia he investigated the area that had recently given important finds in Aurignacian man, and continued then to Paris for work on the material accumulated there in the Museum of Natural History, and to London for examination of the collections in the College of Physicians and Surgeons. While in London he was the recipient of the Huxley medal of The Royal Society for his extensive investigations and researches in anthropology, and delivered the Huxley lecture on "The Neanderthal phase of man."

Dr. Walter Hough, for the Bureau of American Ethnology, in the early fall examined a large burial mound at Indian Mound, Tenn., to determine the type of slab-box burial. He also visited near-by village sites, flint quarries, and burial grounds, obtaining a considerable amount of material. In one of the village sites on the Cumberland River there were obtained numerous shells of mollusks of a species now extinct in that stream.

H. B. Collins, jr., during January, 1928, for the Bureau of American Ethnology, visited areas near Fort Myers, Fla., where mounds of the Calusa Indian type were reported, and where he obtained skeletal remains of considerable importance with respect to the racial identity of this people who, though they existed within historic times, have become extinct and are comparatively little known.

In February, 1928, H. W. Krieger, under funds provided by Dr. W. L. Abbott, proceeded to the Samana Bay region on the north-

eastern coast of the Dominican Republic and there carried on archeological investigations until April, working with G. S. Miller, jr., whose interest in this matter will be discussed in a later paragraph. Mr. Krieger visited a number of caves in the San Lorenzo Bay section, excavating extensive middens found therein and obtaining much information of value. The middens, composed principally of shells and other kitchen refuse, were in places from 4 to 8 feet in thickness, and contained artifacts of various kinds. Following this two Arawak village sites at Anadel and the mouth of the Rio San Juan on the Samana Peninsula, whose location had been indicated by Doctor Abbott from earlier observations, were excavated carefully with the recovery of many articles of scientific importance. The large variety of objects obtained during this work has made important additions to the Museum collections. Officials of the Dominican Republic cooperated most courteously in furthering this work, which it is expected will be continued in the coming year.

The travels of William M. Gabb in the seventies of the last century brought to Washington a few bones of mammals from the caves of San Lorenzo in the Dominican Republic, to which have been added further specimens obtained within recent years by Dr. W. L. Abbott. In May, 1927, Assistant Secretary Wetmore, in travels in this region, observed extensive midden deposits in these caves still untouched, that gave promise of further material of importance. G. S. Miller, jr., curator of mammals, deeply interested in the extinct mammals of the island, visited this area at his own expense in February and March, 1928, accompanied by Mrs. Miller. As the excavations to be made were also of great archeological interest H. W. Krieger, as already mentioned, was detailed to examine that phase through funds provided by Dr. W. L. Abbott. These joint investigations proved of great importance, as Mr. Miller obtained through them extensive series of bones of mammals long extinct and is now able to understand more fully their form and structure. The work was continued at the mouth of the Rio San Juan and at Anadel on the Samana Peninsula, resulting in additional osteological specimens of importance. The material obtained is now under study.

Through the further interest of Doctor Abbott, Arthur J. Poole, of the division of mammals, was occupied from December 8, 1927, to March 21, 1928, in a thorough exploration of the well-known caves near San Michel, Haiti, obtaining large and important collections of bones of the extinct animals which occur in these deposits. It was particularly important that these specimens be collected at this time since removal of the earth on the cave floors was in progress for use as fertilizer and in a short time all material of scientific

value would have been destroyed. As incidental to this work Mr. Poole secured considerable collections of herpetological material and other zoological specimens. Reconnaissance of other caverns may indicate desirability of further work in these deposits from which many bones of mammals and birds have been obtained. This material is now under study.

W. L. Brown, member of the taxidermist staff of the Museum, was detailed to accompany an expedition to the Sudan organized by William N. Beach to secure large mammals. The original party consisted of Mr. and Mrs. Beach, Mr. Marcus Daly, and Mr. Osgood Field. Sailing from Hoboken on January 4 on the S. S. *George Washington*, Mr. Brown and Mr. Field proceeded to Cherbourg, France, and from there continued by rail to Marseille, where they joined the rest of the party and took steamer to Port Sudan, continuing from there by train to Khartoum. In a chartered boat, the *Lord Cromer*, they navigated as far as Malakal, about 50 miles up the White Nile, where sudden illness of Mr. Beach made it necessary to return to Khartoum and prevented his continuing with the party. The others proceeded working the territory between Khartoum and Rejaf. During 20 days in the field Mr. Daly, Mr. Field, and Mr. Brown collected many scientific specimens, as well as material for an exhibition group of gazelles, with all necessary accessories of earth, anthills, thorn bushes, and other vegetation. Mr. Brown, who returned in April, apart from the specimens added to the Museum collections, observed in a wild state over 100 elephants, and many lions, antelopes, hippos, wart hogs, buffaloes, giraffes, zebras, several cats, monkeys, crocodiles, and birds of many varieties, including the shoe-bill stork, experience of great profit to a taxidermist. Mr. Brown sailed from Alexandria, Egypt, on March 25 and arrived in New York April 11, 1928. The collections brought home embraced 49 mammals, 83 bird skins, 103 alcoholic birds and skeletons, and a large number of reptiles and fishes.

In November, 1927, following a stay in this country, Dr. Hugh M. Smith, director of fisheries of Siam, and honorary curator in zoology of the National Museum, returned to Bangkok, where he resumed active collecting of zoological materials. Word has already come of large gatherings of specimens.

In spite of the political situation in China, A. de C. Sowerby, under the auspices of Col. R. S. Clark, continued his researches and collecting. A large consignment of reptiles, fishes, and marine invertebrates, have come from him during the year.

Dr. D. C. Graham, who has forwarded such splendid collections from western Szechuan, China, returned in the late autumn of 1927 to Suifu where he began at once his zoological studies. The first

fruits of his endeavors have been received and include interesting collections of birds, reptiles, and invertebrates.

Dr. J. M. Aldrich, associate curator of insects, who at his own expense was in the field at the end of June, 1927, during the months of July and August continued entomological collecting at various points in the West; eastern Nevada, the higher parts of the Sierra Nevada in California, and the Yellowstone Park, proving localities of greatest interest. While the principal object of his work was the collecting of Diptera, valuable material in other orders of insects was secured.

James O. Maloney, aid in the division of marine invertebrates, while on a vacation tour at his own expense, secured many valuable specimens of terrestrial isopods in Virginia, Tennessee, Alabama, and Mississippi.

At the invitation of Mr. Copley Amory, of Washington, D. C., Mr. and Mrs. Paul Bowman, of George Washington University, and Doctor Bartsch, curator of mollusks, proceeded in June, 1927, to Mr. Amory's summer home on Matamek River on the north shore of the Gulf of St. Lawrence, where Doctor Bartsch initiated plans for a study of the local flora and fauna which were continued by Mr. and Mrs. Bowman until September. Mr. Amory placed a laboratory provided with the needed equipment for research and other facilities at the disposal of the party, and was ever ready to give the benefit of his knowledge of local conditions acquired through many years of residence, as well as personal help. In addition to marine dredging, careful collecting was done along the beaches, in the shallow water lagoons and tide pools, and in the inland pools, lakes, and streams of the region for fresh-water organisms. Collections were secured of the ectoparasites and endoparasites of fishes and careful analyses of the stomach contents of fishes were made. Mr. Bowman devoted time to the plants covering all groups from marine and fresh-water algae to the flowering groups. Serial cores of the peat bogs were taken and the samples shipped to Washington for microscopic study. A large amount of material both of animals and plants was secured which is to be worked up later.

In continuation of Cerion studies mentioned in previous reports, Doctor Bartsch visited the laboratory of the Carnegie Institution at the Tortugas from August 16 to August 27, 1927. The year had been an unusually dry one at the Tortugas, affecting adversely some of the groups of Cerions under observation. Visits were made to all the colonies of Cerions in the Tortugas and material collected for study in Washington. A series of specimens of *Cerion viaregis* from the Tortugas and *Cerion incanum* from Key West and of a hybrid Cerion from Newfound Harbor Key was secured and sent to Prof. Edward

C. Jeffrey, of Harvard University, for a comparative study of their chromosomes.

Botanical field work during the year 1927-28 has been conducted in Honduras by Paul C. Standley, associate curator; in the islands of Formosa and Sumatra by Prof. H. H. Bartlett, collaborator; in Texas by the late Dr. J. N. Rose, associate curator; in Oregon and Washington by Dr. A. S. Hitchcock, custodian of grasses; and in California by J. R. Swallen, assistant in the grass herbarium. Mr. Standley's botanical exploration in Honduras was made possible by the generous cooperation of Prof. Oakes Ames of Harvard University and the United Fruit Co. Work began in December and was conducted from headquarters at Tela, mainly confined to the lowlands and adjacent low mountains along the north coast. During four months upwards of 9,000 specimens were collected, these representing the largest single botanical collection ever procured in Honduras. The material is of unusual interest, since it contains many new specimens and others not known previously from that region. Professor Bartlett's field work in Formosa and Sumatra, financed from personal funds, was conducted under the joint auspices of the National Museum and the University of Michigan. The period of exploration in Formosa though short, yielded specimens of many endemic species, chiefly from the higher mountains, which were not previously represented in American herbaria. In Sumatra the field work was continued from December, 1926, to the middle of July, 1927, and resulted in the accumulation of a large collection consisting of about 2,400 numbers, mostly represented by 5 to 10 specimens each. The wide area covered included the ascent of several volcanoes and lesser mountains, and a reconnaissance of the Asahan region. The importance of this collection can scarcely be overestimated in view of the rapid destruction of the Sumatran jungle, its components being still very imperfectly known.

In connection with current investigations of native plants as potential sources of rubber, the late Dr. J. N. Rose was detailed to field work in Texas during October and November, 1927, necessary funds being supplied by Thomas A. Edison. From the economic standpoint the results were chiefly negative, but there was obtained a considerable collection of herbarium material for use in other current studies, chiefly an investigation of the families Caesalpiniaceae and Mimosaceae. In this work Doctor Rose was accompanied by Paul G. Russell on detail from the Bureau of Plant Industry.

Field studies of grasses for the United States Department of Agriculture were conducted in the Pacific coast region of the United States by two honorary members of the staff during the summer of 1927. Dr. A. S. Hitchcock spent about 10 weeks in the mountains of

Oregon and Washington, in cooperation with the Forest Service, and a similar period was spent in California by J. R. Swallen, assistant in the grass herbarium. In both cases the object sought was to determine the amount and character of variation in the grass species observed with respect to environmental and other factors, and to discover differential characters for the various species. Excellent collections of illustrative material were obtained. At the present time Mr. Swallen is absent on a similar field trip in the southwestern United States.

Under an allotment from the Roebling fund, Dr. W. F. Foshag visited several mineral localities in the State of Sonora, Mexico. The chief point of interest was the Chispas mine, near Arispe, to secure a series of the magnificent silver minerals found there. During several days spent at Bisbee, Ariz., in collecting minerals and examining material offered for sale, some very interesting specimens were added to the collections. In cooperation with the mineralogical museum of Harvard University, and accompanied by a representative of that institution, Doctor Foshag spent three months collecting minerals and examining mineral deposits in the States of Guanajuato, Zacatecas, Durango, and Chihuahua, Mexico. A considerable amount of excellent exhibition and study material was obtained, including groups of large gypsum crystals, a fine series of lead and zinc minerals, and complete sets of ores and rocks from all of the important mining districts visited. These will be used as the basis of a report on these districts.

Drs. C. E. Resser and R. S. Bassler spent two months in the Rocky Mountain region in a reexamination of certain Canadian sections for stratigraphic details necessary for the completion of Doctor Walcott's unfinished manuscript summarizing the knowledge gained in his years of extensive research. The area examined was covered by motor and the party was frequently augmented and the researches greatly facilitated by the cooperation of other geologists familiar with local sections. The territory covered included the Wasatch Mountains, Yellowstone National Park, and the mountains immediately north, the area along Newland Creek, Meagher County, Mont., being given detailed attention. Stops were also made in the Little Belt Mountains. The main objective of the summer's work, however, was the general region of the Bow Valley, Canadian Rocky Mountains, north and west of Banff, Alberta, and other localities well known from Doctor Walcott's investigations.

In cooperation with the Milwaukee Public Museum, Dr. Erwin Pohl continued a detailed study of the little known but highly important stratigraphy of the Middle Paleozoic of the mid-eastern and central States. The researches of the season covered portions of

eastern Wisconsin, southern Michigan, northern Ohio, and southern Ontario. Nearly two tons of selected and beautifully preserved fossils resulted from the trip.

Dr. Joseph A. Cushman, collaborator in paleontology, spent the greater part of the summer of 1927 in a field trip through various countries of western Europe primarily to secure collections of fossil foraminifera from classic areas. He was highly successful in his work and, as a result, large numbers of types will come to the Museum upon the completion of his studies.

Late in the fiscal year Mr. Gilmore was detailed for an expedition in the Two Medicine formation in Montana to search for dinosaur and other vertebrate remains, with George F. Sternberg, who has had long and varied experience in fossil collecting, as his assistant. Incomplete reports to date indicate the finding of valuable material. As the expedition will continue into the next fiscal year, a detailed report will be given later.

Exploratory work in the Pleistocene was again taken up by Dr. J. W. Gidley at Melbourne and other localities in Florida. The expedition, which covered a little more than two months, was made possible through the generosity of Childs Frick, who furnished half of the funds necessary for carrying on the work, the remainder coming from the Smithsonian Institution. Doctor Gidley was assisted by C. P. Singleton, of Melbourne. Two principal problems involved in this research included the further search for evidence on the contemporaneity of man with an extinct fauna in Florida, a much disputed question, and the collection of additional material for the purpose of fixing more definitely the age of this fauna. The results on both counts are regarded as highly satisfactory.

EDUCATIONAL WORK

The educational work of the Museum consists in part of its exhibitions—objects so labeled that the public may be instructed as by an encyclopedia cut apart and spread out, except that its illustrations are real and material things. With advance in museum methods, the objects on display are being grouped to a greater and greater extent to show relationships, with, whenever possible, some added indication of their source, so that at a glance the visitor may comprehend their true character and significance. Visitors to the exhibition halls of the National Museum reached a higher number during the present fiscal year than ever before in the history of the institution, a certain index to present-day interest in knowledge as included in the scope of the modern museum. As is usually true the greater number of visitors came during the warmer months, and as in other recent years the automobile was an important means of travel. The range of

States represented by license plates on cars parked before the buildings included every section of the Union.

An incidental educational feature having for its purpose the promotion of scientific or technical teaching throughout the country has been the distribution to schools and colleges of duplicate material, properly identified and labeled, while through its publications and correspondence the National Museum has contact with a great group of persons many of whom never come to Washington.

During the period of the Scottish Rite convention a group of ladies was shown the lace and ethnological exhibits by the head curator of anthropology, Doctor Hough. Eighty pupils from the Petworth School were given a talk on the exhibitions of Greek classical art. The Baltimore Woman's Club was shown the collection of lacquers. The Colored Teachers' Normal School was assisted in the study of Japanese costume. The Woman's Club of Chevy Chase and Rockville, Md., were aided in preparing a historical pageant, and a number of art school classes used the facilities of the Museum in copying designs from specimens.

H. W. Kreiger, curator of American archeology spoke on archeological explorations before the American Anthropological Association and the Arizona Archeological Society.

The division of physical anthropology prepared a case of exhibits on Alaska for the National Academy of Sciences, these exhibits being kept by the academy for two months. Several talks were given by the curator, Doctor Hrdlicka, to classes of students visiting the division for that purpose.

Dr. J. M. Aldrich, associate curator of insects, gave a lecture on flies injurious to man before the medical class of Howard University. Dr. Paul Bartsch, curator of mollusks, regularly conducted classes of students from George Washington University and Howard University through the Museum for study of exhibits. He gave the following popular lectures before various societies and other organizations, on "The Smithsonian Institution and its activities," before the Rotary Club, New York City; on "School museums," at a meeting of the Parent-Teachers Association of the John Eaton School; on "Wonders of the deep," before the Men's Club of Mount Pleasant Congregational Church and the Takoma Park Baptist Church; on "Our native ferns and orchids," at a meeting of a branch of the National Plant, Flower, and Fruit Guild at Asheville, N. C.; on "Oysters," at the Washington Club; on "The pleasures that birds bring to the home," to the Chillum Castle Heights Parent-Teachers Association; and on "Birds about the home," to the Wesley Heights Community Club. He also addressed the twenty-third annual meeting of the American Society of Tropical Medicine on "Some intermediate trematode hosts." In addition, Doctor Bartsch has served

as vice president of the district council of the Boy Scouts of America, and as chairman of their camp committee and the court of honor. Mr. William B. Marshall, assistant curator of mollusks, has served as deputy commissioner at large in the same organization.

Dr. Waldo L. Schmitt, curator of marine invertebrates, gave seven talks illustrated with lantern slides on various phases of his South American trip as the Walter Rathbone Scholar of the Smithsonian Institution: Two before Boy Scout organizations; two before Men's Clubs of Washington churches; one before an open meeting of a Takoma Park Mothers' Club; one to the Vivarium Society of Washington; and a brief one on "South Shetland Whaling" before the American Society of Mammalogists during its annual meeting at the Museum in April. C. R. Shoemaker, assistant curator in the same division, rendered valuable assistance to the Audubon Society in connection with their bird study classes and field trips during the current year.

A special feature of the Nashville meeting of the American Association for the Advancement of Science was a symposium on the relation of science to the press, arranged by Austin H. Clark, curator of echinoderms, which occupied the morning and afternoon of Wednesday, December 28, 1927. A report on this symposium, consisting of his introductory remarks as chairman and all the addresses in full, has been published in *Science*. At Nashville, in cooperation with Science Service, he arranged a series of seven radio talks which were given in connection with the meeting of the association. One of these talks on "The sea" was given by him personally from station WSM on the evening of December 29, 1927. In addition he gave two informal talks during the year, one on the relation between science and the press before the Harvard Club of Washington, and the other introducing a film illustrating evolution, at the Unitarian Church.

Educational work by members of the National Herbarium staff has consisted mainly of assistance given in suggesting helpful literature and methods of work and in identifying specimens for individuals and such organizations as the American Nature Association. Much of this help is given informally.

In the department of geology the usual assistance has been rendered to nature teachers of the public schools.

Acting upon a suggestion from a committee from the Geological Society of Washington, the regular meeting of the society was held in the National Museum on the evening of February 28. Representatives from each division of the department of geology were present to act as guides and explain the exhibits. The meeting was well attended and the members of the society expressed great interest in the collections.

Doctor Foshag delivered lectures to classes in mineralogy at Rutgers College and George Washington University. He also addressed the Petrologists Club of Washington on the iron ores of Cerro Mercado, Durango, Mexico, and the Pick and Hammer Club on the collecting of minerals in Mexico.

Doctor Bassler has given talks to groups of young people brought here by the Department of Agriculture and to classes in natural science of local and visiting schools. He has also served as guide to the local geology for advanced classes in geology from universities, and has had various occasions to explain the Museum's activities to such bodies of students. He continued to serve as examiner in geological subjects for the Girl Scouts and also as director of a project of the National Research Council on oil geology.

Mr. Gilmore delivered a lecture on "Extinct monsters" to an assembly of about 800 students at one of the local high schools. He has also on several occasions personally conducted classes from the various schools of Washington through the exhibition halls of his division.

The educational work of the department of arts and industries and the division of history is mainly visual, as the small personnel precludes extended verbal instruction without neglect of more essential duties relating to the care and preservation of the collections. Visual education of this sort is being appreciated more and more by teachers from the local and near-by schools who in some instances are making regular visits with their classes for the purpose of studying the collections.

During the National 4-H Club camp, composed of prize-winning farm boys and girls from all parts of the country and held on the grounds of the Agricultural Department June 21-26, 1928, the delegation of over 200, representing 617,000 members enrolled in about 45,000 clubs, visited the National Museum. They were divided into four groups, each provided with a special guide, and shown over the Arts and Industries and Aircraft Buildings. Talks on exhibits of particular interest were given by various members of the staff, so that these young people might return to their homes familiar with some of the principal treasures of the national collections.

Members of the staff of the divisions of mineral and mechanical technology gave many talks to school children in the course of the year on the mineral industries, and on land, water, and air transportation developments.

Popular interest in aviation brought a wide demand for an illustrated lecture on the history of flight and on construction of model airplanes. Mr. Garber accordingly prepared such a lecture which was presented eight times during the year: in Memphis, Tenn., at the time of the National Model Airplane Tournament in October,

1927; at Richmond, Va., under the auspices of the Community Center, in November, 1927; at three high schools and two churches of Washington; and before one local troop of Boy Scouts.

At the invitation of the Northeastern Pennsylvania Alumni Club of Lehigh University, Mr. Mitman gave a talk on the Smithsonian and its activities to the 75 engineer members of the club at the annual meeting, held in April, 1928, at Wilkes-Barre, Pa.

Thirty-two lectures or special talks to educational groups were given during the year by Mr. Lewton, curator of textiles, and the members of the staff under his supervision. Among the more important of these were the following given at the Museum by the curator: "Some economic aspects of the textile industry," to a class in economics from the American University; "Technique of decoration of textile fabrics," to students of the State Teachers' College, Fredericksburg, Va.; "Fabric design and ornamentation," to a class in domestic arts, Central High School; and "Design and its application to cloth," to the art teachers of the local school system to acquaint them with material available for use in their work. These teachers afterwards brought their classes to the Museum and went over the subject covered by the curator. The curator gave a lecture at Silver Spring, Md., on "Coloring and ornamenting textile fabrics," to the graduating class of the National Association's Institute of Dyeing and Cleaning. A talk on textile design, based on the Museum's exhibits, was given by the aid, Mrs. E. W. Rosson, to the major drawing class, Western High School. This class later visited the Museum with their instructor to study and copy nature designs from specimens of silk fabrics. Talks on textiles were also given at various times to sixth-grade pupils from the Amidon, Benning, West, and Takoma graded schools; to five classes from Eastern and Business High Schools; to four classes from Wilson Normal School; and to a class in domestic art from the Abbott Private School.

Several classes of student nurses from the Washington and Baltimore hospitals visited the division of medicine to study the collections. On these occasions health films were projected for their benefit. The District of Columbia Parent-Teacher Association continued its interest in the hygiene and sanitation exhibits, and several groups of members had the collections explained to them.

The College Woman's Club visited the division of graphic arts to study the technique of etching, the various methods of which were explained by Mr. Tolman, assistant curator, with the exhibits for illustrations. In this division visual education is furthered not only by the permanent collections on display in the public exhibition halls and by regular series of special loan exhibitions, but also through a

series of six traveling exhibits which are sent out for display in various other cities and towns. Each of these exhibits consists of a specially selected series of prints, properly labeled and arranged in sequence to illustrate the processes used in the graphic arts. These traveling exhibits were shown fifty-four times during the year in schools, colleges, libraries, and museums, from the Atlantic to the Pacific.

At the request of the Quartermaster Department of the United States Army a special collection of uniforms, swords, and firearms was arranged by Capt. Charles Carey, assistant curator of history, and installed at the exhibition for the benefit of the Army Relief Association, which was held at the Washington Barracks September 30 and October 1, 1927. Captain Carey also arranged and installed a special series of firearms at Ohio's Second Annual Sportmen's and Outdoor Show held in Cleveland, Ohio, May 17 to 23, 1928, and personally superintended the exhibition.

VISITORS

The Museum buildings are open to the public free of charge every week day from 9 a. m. to 4.30 p. m. and, in addition, the Natural History Building and the Arts and Industries Building are open on Sunday afternoon from 1.30 to 4.30. During the present year the exhibits in the Smithsonian Building were also opened to the public on Sunday afternoon from January 22 to the close of the year. This year all exhibition halls were closed on Christmas Day and New Year's Day, following the precedent of 1927.

The flags on the buildings were placed at half mast out of respect for Henry White, Regent of the Smithsonian Institution, who died July 16, 1927. The flags on the buildings were also placed at half mast on December 1, 1927, on account of the death of Charles F. Choate, a Regent of the Smithsonian Institution, and on March 23, 1928, the flags were for a third time placed at half mast out of respect for Senator Woodbridge N. Ferris, a Regent of the Smithsonian Institution, whose death occurred at that time.

The visitors to the Museum for the year aggregated 1,413,386 persons, an increase of more than 260,000 over the previous year. Average attendance for week days was 3,901, and for Sundays, 3,761. The number of visitors to the Smithsonian Building during the year was 175,190 and to the Aircraft Building 102,185, a daily average of 478 for the former and 279 for the latter; to the Arts and Industries Building, 448,709 on week days and 68,529 on Sundays, a daily week-day average of 1,442 and a Sunday average of 1,317; and to the Natural History Building, 505,471 on week days and 113,302 on

Sundays, a daily average on week days of 1,625 and on Sundays of 2,178.

The following tables show, respectively, the attendance of visitors during each month of the last year and for each year since 1881, when the building now devoted to arts and industries was first opened to the public:

Number of visitors during the year ended June 30, 1928

Year and month	Smithsonian Building	Museum buildings			Total
		Arts and Industries	Natural History	Aircraft	
1927					
July-----	18, 678	50, 506	88, 510	10, 243	167, 937
August-----	29, 967	71, 303	83, 584	16, 568	201, 422
September-----	16, 327	43, 190	59, 161	8, 633	127, 311
October-----	8, 620	28, 841	40, 004	5, 354	82, 819
November-----	5, 647	17, 500	30, 424	3, 654	57, 225
December-----	4, 155	13, 048	21, 129	3, 892	42, 224
1928					
January-----	4, 478	13, 203	23, 020	2, 721	43, 422
February-----	5, 873	15, 777	27, 755	2, 879	52, 284
March-----	8, 291	20, 931	38, 738	5, 368	73, 328
April-----	19, 372	52, 127	73, 815	10, 575	155, 889
May-----	23, 666	78, 075	62, 022	14, 947	178, 710
June-----	30, 116	112, 737	70, 611	17, 351	230, 815
	175, 190	517, 238	618, 773	102, 185	1, 413, 386

Number of visitors to the Smithsonian and Museum Buildings since 1881

Year	Smithsonian Building	Museum buildings			Total
		Arts and Industries	Natural History	Aircraft	
1881-----	100, 000	150, 000			250, 000
1882-----	152, 744	167, 455			320, 199
1883-----	104, 823	202, 188			307, 011
1884 (half year)-----	45, 565	97, 661			143, 226
1884-85 (fiscal year)-----	105, 993	205, 026			311, 019
1885-86-----	88, 960	174, 225			263, 185
1886-87-----	98, 552	216, 562			315, 114
1887-88-----	102, 863	249, 665			352, 528
1888-89-----	149, 618	374, 843			524, 461
1889-90-----	120, 894	274, 324			395, 218
1890-91-----	111, 669	286, 426			398, 095
1891-92-----	114, 817	269, 825			384, 642
1892-93-----	174, 188	319, 930			494, 118
1893-94-----	103, 910	195, 748			299, 658
1894-95-----	105, 658	201, 744			307, 402
1895-96-----	103, 650	180, 505			284, 155
1896-97-----	115, 709	229, 606			345, 315
1897-98-----	99, 273	177, 254			276, 527

Number of visitors to the Smithsonian and Museum Buildings since 1881—Contd.

Year	Smithsonian Building	Museum buildings			Total
		Arts and Industries	Natural History	Aircraft	
1898-99	116, 912	192, 471			309, 383
1899-1900	133, 147	225, 440			358, 587
1900-1901	151, 563	216, 556			368, 119
1901-2	144, 107	173, 888			317, 995
1902-3	181, 174	315, 307			496, 481
1903-4	143, 988	220, 778			364, 766
1904-5	149, 380	235, 921			385, 301
1905-6	149, 661	210, 886			360, 547
1906-7	153, 591	210, 017			363, 608
1907-8	237, 182	299, 659			536, 841
1908-9	198, 054	245, 187			443, 241
1909-10	179, 163	228, 804	50, 403		458, 370
1910-11	167, 085	207, 010	151, 112		525, 207
1911-12	143, 134	172, 182	281, 887		597, 203
1912-13	142, 420	173, 858	319, 806		636, 084
1913-14	102, 645	146, 533	329, 381		578, 559
1914-15	40, 324	133, 202	321, 712		495, 238
1915-16	48, 517	146, 956	381, 228		576, 701
1916-17	86, 335	161, 700	407, 025		655, 060
1917-18	67, 224	161, 298	401, 100		629, 622
1918-19	101, 504	266, 532	¹ 132, 859		500, 895
1919-20	86, 013	250, 982	422, 984		759, 979
1920-21	90, 235	286, 397	467, 299	31, 235	875, 166
1921-22	83, 384	262, 151	441, 604	46, 380	833, 519
1922-23	95, 168	259, 542	508, 518	42, 904	906, 132
1923-24	104, 601	290, 012	540, 776	43, 534	978, 923
1924-25	107, 342	304, 858	557, 016	52, 787	1, 022, 003
1925-26	110, 975	355, 762	581, 563	58, 005	1, 106, 305
1926-27	128, 868	380, 430	561, 286	82, 628	1, 153, 212
1927-28	175, 190	517, 238	618, 773	102, 185	1, 413, 386
Grand total...	5, 817, 772	11,224,544	7, 476, 332	459, 658	24, 978, 306

¹ Building open for only 3 months of the year.

PUBLICATIONS

The publications issued during the year include 10 volumes, namely, the annual report for 1927; Bulletin 100, volume 7, Contributions to the biology of the Philippine Archipelago and Adjacent Regions—The Fishes of the Families Pomacentridae, Labridae, and Callyodontidae, collected by the United States Bureau of Fisheries steamer *Albatross*, chiefly in Philippine seas and adjacent waters, by Henry W. Fowler and Barton A. Bean; Bulletin 141, Collection of Heating and Lighting Utensils in the United States National Museum, by Walter Hough; Bulletin 142, Life Histories of North American Shore Birds—Order Limicolae (part 1), by Arthur Cleveland Bent; Bulletin 143, Biological and Taxonomic Investigations on the Mutilid Wasps, by Clarence E. Mickel; Bulletin 144, The American Bats of the Genera *Myotis* and *Pizonyx*, by Gerrit S. Miller, jr., and

Glover M. Allen; contributions from the United States National Herbarium, volume 27, Flora of the Panama Canal Zone, by Paul C. Standley, and a small edition, for office use, of the complete volumes 68, 69, and 70 of the Proceedings. Fifty-nine separate papers published include two papers in the Bulletin series and 57 in the Proceedings.

The distribution of volumes and separates to libraries and individuals on the regular mailing lists aggregated 97,848 copies, while in addition 13,557 copies of the publications issued during this and previous years were supplied in response to special requests. The mailing lists have been carefully revised to avoid loss in distribution so far as possible.

The editorial office, besides supervising the printing of the publications, has charge of all miscellaneous printing and binding for the Museum, in which connection 468,210 forms, labels, and other items were printed and 1,892 volumes were bound.

LIBRARY

The library of the National Museum, with other divisions of the Smithsonian library, owes its growth largely to the exchange of publications between the Institution and its branches and other learned institutions and societies throughout the world. In part these publications come direct to the library and in part arrive through the medium of the International Exchange Service which is administered by the Institution.

Accessions for the year were notable as they numbered 3,015 volumes and 1,165 pamphlets, giving the library a total of 72,315 volumes and 106,881 pamphlets. These figures it may be said do not include hundreds of volumes of serials that await completion. Though most of the accessions came from exchange of publications it may be recorded that an important number were received by donation. The most noteworthy of these gifts, received from the American Association for the Advancement of Science, comprised 595 volumes and 416 parts, among them numbers of volumes that were out of print and very rare, including many that the library had needed for a long time to complete some of its important sets. Many items in this valuable gift served to fill out volumes that were being held for binding, and so contributed both to the completeness and to the permanence of the collections. Several other gifts worthy of special mention include an illustrated copy, in manuscript, of "A Souvenir of Wyoming," a diary of a fishing trip in Jackson Hole and Yellowstone Park, with remarks on early history and historical geography, from Thomas A. McCaslin. William K. Vander-

bilt presented a copy of his privately printed work entitled "To Galapagos on the *Ara*." Sixty-eight volumes and 47 parts were transferred from the Library of Congress to supplement our reference works; and about 300 volumes, chiefly on the religions of the Old World, came as a bequest from the estate of Dr. I. M. Casanowicz, late assistant curator of the division of Old World archeology. Many other gifts were received, especially from Secretary Abbot, Assistant Secretary Wetmore, A. H. Clark, Dr. W. H. Holmes, Dr. Walter Hough, Dr. Aleš Hrdlička, Dr. W. R. Maxon, J. U. Perkins, Miss M. J. Rathbun, Dr. C. W. Richmond, Robert Ridgway, the late Dr. J. N. Rose, R. C. Smith, Dr. L. Stejneger, the late B. H. Swales, and Dr. J. R. Swanton.

Purchases of books during the year were restricted within small limits by the available funds but added many important items to the collections. Increase in the appropriation for this purpose is urgently needed since it stands now at a low sum that is entirely inadequate. Though the Library of Congress and other libraries of the city offer extraordinary facilities there are many works of reference that are required by curators for daily consultation so that dependence can not be placed on drawing them from the shelves of other libraries as they are also in demand elsewhere. Such works must be purchased. In the past few years the cost of books, particularly of scientific books, has more than doubled, so that the amount now available can not cover within a large degree the needs of the many and varied sciences that it is supposed to serve.

During the year 10,526 parts of periodicals were entered, 821 volumes and 1,039 pamphlets were catalogued, and 2,382 cards were added to the shelf list. The number of books and pamphlets sent to the sectional libraries was 6,683. The loans to members of the scientific staff numbered 5,013, of which 2,113 were borrowed from the Library of Congress and 236 elsewhere. Other loans totaled 89, made chiefly to Government libraries, but a score or more to libraries outside of Washington, including those of the American Museum of Natural History, Archeological Institute of America, Berkshire Athenaeum, Carnegie Museum, the E. I. du Pont de Nemours & Co. Experimental Station, Rockefeller Institute, Westfield Normal School, and the following colleges and universities: Maryland, North Carolina, Princeton, Toronto, and Williams. As usual thousands of publications were consulted in the reading room, not only by members of the Museum staff, but by investigators from other departments of the Government and elsewhere, including a number of workers from abroad. Information was supplied by the library staff also in connection with many inquiries received from various parts of the country. The number of books sent back to other libraries was

2,451, of which 2,262 were returned to the Library of Congress. The volumes prepared for binding numbered nearly 2,200; of these 1,701 were sent to the bindery during the fiscal year.

Among the special activities of the year may be mentioned the sorting of a large accumulation of reprints, which were distributed to the curators to whose work they were most related. A second was the listing, in preparation for cataloguing, of some of the special collections, including the Casey, Dall, Gill, Henderson, Lacoë, Roebing, Schaus, Springer, and Teller libraries. To expedite this work, the Library of Congress contributed the services of two typists, in return for which the library will later provide manuscript cards for the items in these collections, as well as in its other collections, that are not in the Library of Congress.

The 36 sectional libraries in the Museum were brought, during the year, into closer working relation with the main library of the Museum, and with the other units of the Smithsonian library system. The work of completing their sets of society and serial publications was continued, their binding was considerably advanced, and marked progress was made in cataloguing their collections. The sectional libraries are as follows:

Administration.	Marine invertebrates.
Administrative assistant's office.	Mechanical technology.
American archeology.	Medicine.
Anthropology.	Minerals.
Biology.	Mineral technology.
Birds.	Mollusks.
Botany.	Old World archeology.
Echinoderms.	Organic chemistry.
Editor's office.	Paleobotany.
Ethnology.	Photography.
Fishes.	Physical anthropology.
Foods.	Property clerk's office.
Geology.	Reptiles and batrachians.
Graphic arts.	Superintendent's office.
History.	Taxidermy.
Insects.	Textiles.
Invertebrate paleontology.	Vertebrate paleontology.
Mammals.	Wood technology.

During the present year reorganization of the technological library was continued and many thousands of Government publications not related directly to the work of the Institution and its branches, which had been accumulating in this library for years, were returned to the Superintendent of Documents, thus releasing space for the much-needed rearrangement and expanding of the collections which is now under way. In the reference room the cement floor was covered with cork carpet, many new shelves were built in, some of the furniture was refinished, and, to make the room still more attrac-

tive, several ferns, palms, and other plants—the generous gift of the Bureau of Plant Industry—were placed on the floor and in the gallery. The collections in this room were entirely reorganized, the less-used books being removed to other parts of the library, and those in constant demand by the curators put where they would be immediately available. Among the latter were the standard reference works that belong to the library and a set of Smithsonian publications. To this room were also transferred from the Smithsonian Building the current files of scientific and popular periodicals and the employees' library. Finally, a trained assistant was put in charge, and the room opened to the public, with the result that the library increased its usefulness many fold, not only by making its collections more accessible to the curators but by providing material and information, both directly and indirectly, for the readers and other visitors who come to it daily.

The central museum library is of high importance in the research work of our organization, since it serves all those engaged in scientific investigation in providing the literature without which work can not be prosecuted. The present staff works whole-heartedly and sincerely, but further personnel should be provided for the more adequate manning of the library in accordance with its needs. At the earliest possible moment it should be increased by the addition of two cataloguers, two library assistants, a typist, and a messenger. Until these can be added, the staff will scarcely be able to keep up adequately the current work, to say nothing of correcting and completing the work that it has inherited from the past.

PHOTOGRAPHIC LABORATORY

The photographic laboratory of the Museum, with only three employees, reports as the work of the year the making of 1,808 negatives, 12,845 prints, 539 lantern slides, 135 enlargements, and 34 transparencies, the mounting of 491 prints, the development of 104 plates, 91 rolls of film and 43 film packs, and the making of 3 color plates. These were required for illustrations in publications, or for record in the National Museum, the National Gallery of Art, and the Bureau of American Ethnology. The Museum laboratory through a cooperative arrangement serves the other two Smithsonian bureaus in their photographic work. The whole represents a considerable increase in the amount of work for the previous year.

BUILDINGS AND EQUIPMENT

Building repairs and alterations.—In the Natural History Building the exterior woodwork of all windows on the ground and third

floors, including the windows in the two courts, was painted with two coats of lead and oil paint. In addition the interior woodwork of all windows in the exterior walls on the third floor was revarnished. Down pipes leading from the roofs on the east, west, and north halls and ranges were repaired. Wooden ladders were installed on top of the steel I-beams supporting the ceilings in the gallery on the attic floor for use in inspecting the walls supporting the dome. The covered pipes in the engine room and the new steel anchor column were painted. The ceiling and walls in room 418 (division of birds) were pointed up and painted. The men's comfort room was remodeled so as to make accessible for repair purposes the piping and other fixtures. The wooden floors in rooms occupied by the division of mammals and the Biological Survey were repainted and the floors in the office of the assistant secretary were refinished. All tin-lined gutters on the roofs of the building were given one coat of metallic and oil paint, and broken glass in windows in various parts of the building was replaced.

In the Arts and Industries Building the more important work accomplished was the repainting of the metal ceiling in the southwest range with two coats of lead and oil paint, and the coating of the side walls above the gallery and the entire south wall with water color. The new pipe railing around the gallery beams and posts was painted, and the gallery in the southwest range was repaired in connection with preparation for its use for exhibitions, which included the installation of an iron-pipe railing on the edge to replace the line of mahogany unit table bases formerly used there as a rail guard. The composition floor of the reading room in the library was covered with cork carpet, and the side walls and ceiling in the stair hall, from the ground to the second floor, in the southeast pavilion were pointed up and painted.

On the exterior of the building two roofs above the rotunda were painted, together with the metal roofs and gutters over the eight ranges. All windows with wood frames and sash above the roofs were coated with lead and oil paint, as well as the vertical sides of the lantern with circular windows on top of the rotunda. The metal roofs over the east and south halls and over the side of the west hall, including the roofs over the lanterns, were painted, and the ventilating windows on the roofs were repaired and provided with wire-netting screens. A wire-screen partition furnished with doors was built at the head of the steps on the third floor of the northeast pavilion, to prevent unauthorized persons from entering the mechanical technology laboratory. The walls, ceiling, window sash, trims, floor, and radiator in room 130, southwest pavilion, were repainted. A concrete floor was laid in the room back of the mine exhibit, south-

west pavilion, and sheet-iron hoods were made for radiators in the lace hall to protect the walls and exhibits above them from accumulation of dirt.

In the Smithsonian Building the women's comfort room at the north entrance was completely renovated, which included the repainting and pointing up of the walls, and installation of a hot-water system in the basement to furnish hot water to the comfort rooms. Sink and safety treads were installed on the oak stairs leading to the comfort room, and the side walls and ceiling of the watch room were painted. The floor in the office rooms in the herbarium hall was repaired, and the doors of the disbursing agent's office were remodeled. The doors in the storage room were made fireproof by covering them with sheet iron. The east entrance vestibule was repaired and painted.

The exterior of the aircraft building was painted and broken glass replaced.

The work of replacing the main portion of the concrete road east of the Natural History Building was continued, 87½ linear feet being laid during the month of September, with a further section of 93 linear feet in June.

Heat, light, and power plant.—The power plant which was closed down for the summer, as customary, was put in operation September 21, 1927, and continued until May 29, 1928. During the period that the plant was closed the men concerned with its operation took the major part of their annual leave, while those on duty were occupied in making necessary repairs and changes to put the plant in proper condition for operation during the balance of the year. Notwithstanding the fact that the winter was mild the coal consumption was slightly greater than last year, an increase probably due to the fact that the small boiler used for domestic purposes gave out so that in June it was necessary to operate one of the larger boilers to furnish hot water required for the Natural History Building. A larger and more modern boiler for water was ordered immediately but was not delivered for installation until late in July. It is believed that the new boiler will result in a small saving in operation as it will be operated by the run-of-the-mine coal used in the large plant instead of the anthracite coal, costing about double as much, which was required for the older heater. In the operation of the plant 3,416 tons of coal were used which as noted is a slight increase above the previous year. The cost of coal for the year was somewhat greater than the preceding one, the average price being \$5.87 a ton. The Steamboat Inspection Service of the United States Government was requested to examine the boilers during the summer and reported them in good condition, stating that they complied with all regulations governing steam boilers of this type.

The engineer reports a decided increase in the production of electric current due to the installation of new pistons in the three 250-horse-power engines. This increase is essential as the demands for light and power from all buildings become greater each year. The electric current generated during the year totaled 603,343 kilowatt-hours, at a cost of 1.89 cents to the kilowatt-hour if interest and depreciation of plant are included and 1.61 cents to the kilowatt-hour if interest and depreciation are excluded.

The ice plant was in operation 3,721 hours and produced 354.3 tons of ice at an average cost of \$2.415 a ton which is slightly less than for the past year.

Furniture and fixtures.—The furniture added during the year included 23 exhibition cases and bases; 226 pieces of storage, laboratory, and office furniture; and 2,178 drawers of various kinds. During the same period one exhibition case and base and 12 pieces of storage, laboratory, and office furniture were condemned as unfit for further use. An inventory of furniture on hand June 30, 1928, shows 3,737 exhibition cases and bases; 12,578 pieces of storage, laboratory, and office furniture; 52,285 wooden unit drawers; 4,712 metal unit drawers; 15,344 insect drawers; 19,261 special drawers; 1,185 wooden boxes; and 533 wing frames.

MEETINGS AND RECEPTIONS

The United States National Museum, with its fully equipped auditorium and lecture room, is precluded by its limited maintenance funds from initiating courses of lectures in its own behalf. It freely offers its meeting facilities, however, to other organizations of kindred purposes for their regular and special gatherings and assists so far as possible in carrying out their programs. The auditorium and lecture room were utilized on 115 such occasions during the year. The contacts made and the variety of interests served will be seen from the following list of organizations using these facilities, and the names of the speakers with the titles of the lectures delivered.

1927

August 27, 10 a. m. (auditorium): Address, illustrated with lantern slides, by H. P. Caemmerer, secretary and executive officer of the Commission of Fine Arts on "The development of Washington City."

September 9, 3.30 p m. (auditorium): Graduate school of United States Department of Agriculture. Address by Prof. Jacob Lange, of Denmark on "Agricultural education in Denmark."

September 29, 1.30 p m. (auditorium): Meeting of the producers supplying the farmers' market to discuss the question of selecting a new site for the market.

October 6, 10 a. m. (room 43): Federal Horticultural Board, United States Department of Agriculture. Hearing to consider the advisability of including

Maryland and the District of Columbia in the area quarantined on account of the Japanese beetle.

October 6, 8 p. m. (room 43): The Entomological Society of Washington. An illustrated lecture by Dr. F. L. Campbell on "The toxicology of arsenic as an insecticide"; and a talk by Dr. W. H. Larrimer on "Results of the \$10,000,000 European corn-borer campaign."

October 7, 11.30 a. m. (auditorium): Forest Service, United States Department of Agriculture. Address by W. C. Barnes on "The long-horn cattle of Texas," illustrated by slides.

October 11, 4.45 p. m. (room 43): Society for Philosophical Inquiry.

October 25, 4.45 p. m. (room 43): Anthropological Society of Washington. Address by Dr. John M. Cooper on "Field notes on northern Algonkian magic and divination."

October 31, 4 p. m. (room 43): Annual meeting of the Smithsonian Relief Association.

November 2, 11.30 a. m. (auditorium): Forest Service, United States Department of Agriculture. Address by Dr. W. W. Stockberger, director of personnel and business administration, Department of Agriculture, on "Personnel classification in the Department of Agriculture."

November 3, 8 p. m. (room 43): The Entomological Society of Washington. Illustrated address by Dr. L. O. Howard on "Last summer's entomological experiences in Europe"; and an address by Dr. E. A. Beck on "Some facts regarding moth-proofing solutions."

November 8, 4.45 p. m. (room 43): Society for Philosophical Inquiry.

November 8, 8 p. m. (room 43): American Horticultural Society. Illustrated lecture by Montague Free, horticulturist of the Brooklyn Botanic Garden, Brooklyn, N. Y., on "Rock gardens."

November 9, 7.30 p. m. (auditorium): Address by Paul E. Garber on "Model aeronautics, its history, theory, and practice," given under the auspices of the Washington Times.

November 15, 16, and 17 (auditorium and room 43): Annual meeting of the American Ornithologists' Union, with a special exhibition of historical matter pertaining to ornithology.

November 22, 4.45 p. m. (room 43): Anthropological Society of Washington. Address by Dr. Frank H. H. Roberts, jr., on "A late basket-maker village in the Chaco Canyon."

November 23, 8 p. m. (room 43): The Wild Flower Preservation Society. Talks by members on their observations during the summer.

December 1, 8 p. m. (room 43): The Entomological Society of Washington. Business meeting and election of officers. Talks by S. B. Fracker on "Central activities on the pink bollworm in the Southwest," and by A. C. Baker on "The campaign of eradication of the Mexican fruitworm."

December 3, 2 p. m. (auditorium): The National Association of Retired Federal Employees. Address by Representative Grant M. Hudson, of Michigan, on "The proposed new retirement bill."

December 5, 8 p. m. (auditorium): The Athens College Committee in Washington. Address by Hallett Carpenter, editor of the Near East Magazine, on "Scenes in Athens, a touch of home life in Peloponnesus, breaking of ground for new American college in Athens, and a complete picture of the miraculous Ikon at Tinos," illustrated with motion pictures.

December 7, 11.30 a. m. (auditorium): Forest Service, United States Department of Agriculture. Illustrated address by Wallace I Hutchisons, on "California."

December 7, 8, 8 p. m. (auditorium): American Society of Mechanical Engineers, aeronautic division, under auspices of Washington (D. C.) section. Addresses by E. E. Aldrin, first lieutenant, United States Army Air Corps, material division, Wright Field, Dayton, Ohio, on "Oleo gears for aircraft"; and by E. N. Fales, aeronautical engineer, Dayton, Ohio, on "A new propeller-type, high-speed windmill for electric generation." On December 8, an address by J. B. Johnson, chief, materials branch, engineering division, Air Service, War Department, Wright Field, Dayton, Ohio, on "Materials for aircraft parts subjected to high temperatures." Aeronautic Progress Report, 1927, by aeronautic division, A. S. M. E., and high speed aeronautic research film, developed by Baron Sheba, Imperial Aeronautic Institute, Japan.

December 13, 4.45 p. m. (room 43): Society for Philosophical Inquiry.

December 13, 8 p. m. (room 43): The American Horticultural Society. Illustrated talk by Titus Ulke, on "The Canadian Rockies."

1928

January 5, 8 p. m. (room 43): The Entomological Society of Washington. Talks by R. A. Shannon, on "Experiences in the Argentine"; and by F. C. Craighead, on "Forest insects."

January 7, 1.30 p. m. (auditorium): The National Association of Retired Federal Employees. Business meeting and an address by Representative Ernest W. Gibson, of Vermont.

January 10, 4.45 p. m. (room 43): Society for Philosophical Inquiry.

January 10, 8 p. m. (room 43): American Horticultural Society. Illustrated lecture by Prof. David Lumsden, on "The propagation of orchids."

January 17, 4.45 p. m. (room 43): Anthropological Society of Washington. Address by Paul E. Garber on "Indian uses of the bow and arrow."

January 17, 18, 10 a. m. (auditorium): The Federal Radio Commission. Public hearings on short waves.

January 19, 8 p. m. (room 43): The Wild Flower Preservation Society. Address by Dr. Edgar T. Wherry on "Wild flowers of Virginia."

January 24, 11 a. m. (auditorium): Memorial meeting in honor of Charles Doolittle Walcott, late Secretary of the Smithsonian Institution, presided over by the chancellor of the institution, the Chief Justice of the United States, Hon. William H. Taft.

January 28, 8.55 a. m. (room 43): Dr. Paul Bartsch. Meeting of class from George Washington University.

February 1, 11.30 a. m. (auditorium): Forest Service, United States Department of Agriculture. Illustrated talk by Edward Munns, of the Forest Service, on "Erosion of Soil."

February 2, 8 p. m. (room 43): The Entomological Society of Washington. Addresses by J. A. Hyslop, retiring president, on "Our most important insect pests"; and by C. P. Clausen on "Entomology in Japan."

February 4, 2 p. m. (auditorium): National Association of Retired Federal Employees. Business Meeting.

February 4, 3.30 p. m. (room 43): Boy Scouts.

February 14, 4.45 p. m. (room 43): Society for Philosophical Inquiry.

February 14, 8 p. m. (room 43): American Horticultural Society. Business meeting.

February 15, 7.45 p. m. (room 43): Boy Scouts.

February 15, 8 p. m. (auditorium): The Washington Society of Engineers. Illustrated lecture by Commander E. W. Stedman, of the Royal Canadian Air Force, on "The necessity for airplanes in Canada."

February 17, 2.30 p. m. (auditorium): Smithsonian Staff. Address with motion pictures by Matthew Stirling on "The expedition to New Guinea."

February 18, 4.39 p. m. (room 43): Boy Scouts, meeting James Benn.

February 21, 4.45 p. m. (room 43): Anthropological Society of Washington. Illustrated address by Dr. O. F. Cook on "Peru as a primitive center of Agriculture."

February 21, 8 p. m. (auditorium): The World Unity Foundation. Addresses by Herbert Adams Gibbons, historian, Princeton University, on "America's place in the world"; and by Felix Valyi, editor of Nations, Geneva, Switzerland, on "The contribution of the Orient to world unity."

February 22, 10 a. m. (auditorium): The Masonic Clubs of the District of Columbia. Meeting presided over by Gen. Amos A. Fries, past president of the Masonic Advisory Board. Address by Judge James W. Witten.

February 22, 8 p. m. (room 43): The Wild Flower Preservation Society. Addressed by Floyd W. Schmee, nature guide in Mount Rainier National Park on "Where flowers and glaciers meet."

February 23, 8 p. m. (auditorium): Potomac Garden Club. Business meeting, addressed by Col. Winfield Scott, Commissioner of Pensions, after which motion pictures were shown by W. R. Beattie of the United States Department of Agriculture.

February 25, 3.30 p. m. (room 43): Boy Scouts.

March 1, 8 p. m. (room 43): The Entomological Society of Washington. Addresses by T. E. Snyder on "A visit to Hawaii" (illustrated); by E. R. Sasser, on "Some problems in the enforcement of foreign plant quarantine."

March 7, 11.30 a. m. (auditorium): Forest Service, United States Department of Agriculture. Address by Percy Paxton on "The protection and uses of forests," illustrated with motion pictures.

March 7, 8.30 p. m. (auditorium): The Washington Society of Fine Arts. Twenty-third annual meeting. Address by Frederick Allen Whiting, director, Cleveland Museum of Art, on "How to bring art to the people."

March 10, 3.30 p. m. (room 43): Boy Scouts.

March 13, 4.45 p. m. (room 43): Society for Philosophical Inquiry.

March 14, 8 p. m. (room 43): The Wild Flower Preservation Society. Illustrated address by Dr. Edgar T. Wherry on "Ferns."

March 15, 8.15 p. m. (auditorium): The Washington Academy of Sciences. Introductory address by Dr. Robert B. Sosman, president of the Washington Academy of Sciences. Address by Prof. Ivan P. Pavlov on "Mechanics of the brain," with illustrations.

March 17, 3.30 p. m. (room 43): Boy Scouts.

March 20, 4.45 p. m. (room 43): The Anthropological Society of Washington. Address (illustrated) by H. B. Collins on "Explorations in Alaska."

March 21, 10.30 a. m. (room 43): The Seymour Club. Conference before visiting the National Gallery.

March 22, 23, 9 a. m. (room 43): Shade tree conference, Bureau of Plant Industry, United States Department of Agriculture. Illustrated addresses by Col. U. S. Grant, 3d, on "Past, present, and future development of public parks in the District of Columbia," and by Furman Mulford, of the department, on "Shade trees on the streets in the District of Columbia."

March 24, 3.30 p. m. (room 43): Boy Scouts.

March 27, 11.35 a. m. (auditorium) : Boy Scouts. Motion pictures shown under auspices of Doctor Bartsch.

March 30, 8 p. m. (auditorium) : The District of Columbia Federation of Music Clubs. Concert, and presentation of Isaac Gans loving cup.

March 31, 3.30 p. m. (room 43) : Boy scouts.

April 4, 8 p. m. (room 43) : The Wild Flower Preservation Society. Address by Mrs. Theodore Knappen on "Plants seen on a recent European trip," illustrated.

April 5, 8 p. m. (room 43) : The Entomological Society of Washington. Illustrated lectures by Max Kisliuk, jr., on "Experiences in Argentina, Spain, and the Canary Islands in connection with fruit fly surveys," and by F. C. Bishop on "Fighting insects on the great ranches of the Southwest."

April 7, 3.30 p. m. (room 43) : Boy scouts.

April 10, 4.45 p. m. (room 43) : The Society for Philosophical Inquiry.

April 11, 12, 13, 9.15 a. m. (auditorium and room 43) : Annual meeting of the American Society of Mammalogists, with a special exhibition of mammal paintings and drawings.

April 14, 3.30 p. m. (room 43). Boy Scouts.

April 16, 10 a. m. (room 43) : Annual meeting of the American Society of Ichthyologists and Herpetologists.

April 17, 4.45 p. m. (room 43). The Anthropological Society of Washington. Address by Neil M. Judd on "The present status of archeology in the United States."

April 18, 12 noon, (auditorium) : Forest Service, United States Department of Agriculture. Farewell address by Col. W. B. Greely, Chief of Forest Service.

April 21, 3.30 p. m. (room 43) : Boy scouts.

April 24, 2 p. m. (auditorium) : Public Schools, District of Columbia. Illustrated address by W. C. Barnes on "The forest and its use."

April 25, 8 p. m. (auditorium) : District of Columbia Library Association. Addresses by Dr. C. H. Marvin, president of George Washington University, on "The library school of George Washington University and its future"; by Joseph L. Wheeler, librarian of Enoch Pratt Free Library, Baltimore, Md., on "Publicity as an aid in the work of libraries"; and by Dr. T. P. Sevensma, librarian of the League of Nations, on "The library of the league."

April 26. 3.30 p. m. (room 43) : Howard University Medical School. Address by Dr. Harrison G. Dyar on "Mosquitoes."

April 27, 8 p. m. (auditorium) : American War Mothers, District of Columbia chapter. Address by Representative Royal G. Johnson, of South Dakota. Poems were read by Mrs. George J. Barnett and Mrs. Amos A. Fries. A short address by Gen. Amos A. Fries; music furnished by members of the United States Marine Band.

April 28, 3.30 p. m. (room 43) : Boy Scouts.

April 30 to May 2, 9.30 a. m. (auditorium) : The American Surgical Association and the American Association for Thoracic Surgery. (The fourteenth triennial session of the Congress of Physicians and Surgeons.)

May 3, 8 p. m. (room 43) : The Entomological Society of Washington. Illustrated lectures by J. R. Christian on "Some Aspects of the Interrelationships of Insects and Nemas," and by G. F. White on "Disease Problems in Entomology."

May 3, 3.30 p. m. (room 43) : The Howard University Medical School. Lecture by H. E. Ewing on "Flies."

May 5, 2 p. m. (auditorium) : The National Association of Retired Federal Employees.

May 5, 3.30 p. m. (room 43) : Boy Scouts.

May 8, 2.30 p. m. (room 43): The Howard University Medical School. Illustrated lecture by Dr. J. M. Aldrich on "Flies."

May 8, 4.45 p. m. (room 43): The Society for Philosophical Inquiry.

May 9, 4.45 p. m. (room 43): The Anthropological Society of Washington. Illustrated address by T. A. Flockhart, mayor of Somerville, N. J., on "Pueblo Villages and Dances."

May 10, 3.30 p. m. (auditorium): The Howard University Medical School. Motion pictures to demonstrate disease and remedy with pigs.

May 10, 9.55 a. m. (auditorium): Fifth national oratorical contest. Addresses made by the following contestants: Joseph J. Muldowney, of Maryland; Miss Sheila Doody, private and parochial schools, District of Columbia; and Miss Josephine Sterling, of Virginia. (The Washington Star area finals.)

May 12, 3.30 p. m. (room 43): Boy Scouts.

May 15, 2.30 p. m. (room 43): The Howard University Medical School. Lecture by Dr. Maurice C. Hall, of the United States Department of Agriculture, on "Hook Worms."

May 16, 8 p. m. (auditorium): The Washington Academy of Sciences. Illustrated address by Prof. Fridtjof Nansen on "Problems of Arctic Exploration."

May 19, 10 a. m. (room 43): The Appalachian Trail Conference. Business meeting; motion pictures shown of the Shenandoah National Park.

May 22, 2.30 p. m. (auditorium): The fourth annual national spelling bee. Twenty-five boys and girls entered into this contest. First prize won by Miss Betty Robinson, representing the South Bend News-Times, and second prize won by Miss Pauline Gray, representing the Akron Beacon-Journal.

May 28, 3.30 p. m. (auditorium): The Veterans of Foreign Wars of the United States, Federal Post No. 821, United States Department of Agriculture. The principal speakers were R. W. Dunlap, Assistant Secretary of the Department of Agriculture, and Maj. Gen. Charles P. Summerall, United States Army. Music by United States Navy Band.

June 2, 2 p. m. (auditorium): The National Association of Retired Federal Employees. Business meeting.

June 7, 8 p. m. (room 43): The Entomological Society of Washington. Illustrated lecture by R. A. Cushman on "The C. F. Baker Collection."

June 21 to 26 (auditorium and room 43): Extension service, United States Department of Agriculture. Conference of the National Farm Boys and Girls 4-H Club. Address of welcome by Hon. W. M. Jardine, Secretary of Agriculture. Addresses by C. W. Warburton, director of extension, and by C. B. Smith, chief officer of cooperation extension work. Conferences were held, and addresses made by Hon. J. J. Tigert, Commissioner of Education, by E. V. Wilcox, traveler and author; by Hon. William Tyler Page, Clerk of the House of Representatives; and by Miss Harlean James, of the American Civic Association. The Radio Corporation of America placed a receiving set in the auditorium, and broadcast music and talks from the National Press Club.

June 27, 10.15 a. m. (room 43): The Federal Horticultural Board, United States Department of Agriculture. Conference held on the importations of fruit and rose stocks.

Memorial meeting.—A special memorial meeting to commemorate the life and works of Charles Doolittle Walcott, fourth Secretary of the Smithsonian Institution, was held in the auditorium on the morning of January 24, 1928, at 11 o'clock, by direction of the Board of Regents of the Smithsonian Institution.

The gathering was presided over by the Chancellor of the Institution, the Chief Justice of the United States, the Hon. William Howard Taft.

Addresses were delivered by Dr. John C. Merriam, representing the Carnegie Institution of Washington; Dr. Joseph S. Ames, representing the National Advisory Committee for Aeronautics; Dr. George Otis Smith, representing the United States Geological Survey; and by Dr. Charles G. Abbot, representing the National Academy of Sciences and the Smithsonian Institution.

Congresses, receptions, special exhibitions, and functions.—The forty-fifth stated meeting of the American Ornithologists' Union convened in the National Museum in Washington, November 14 to 19, 1927, with 215 members present. The public sessions were held in the Museum auditorium and room 43. An informal reception was arranged in the National Gallery of Art on the evening of November 15 at which guests were received by the Assistant Secretary and Mrs. Wetmore, assisted by Dr. and Mrs. T. S. Palmer, Mr. J. H. Fleming, and Mr. and Mrs. P. G. Redington. Music for the occasion was furnished by the Army Band. On the evening of November 17 delegates to this convention were entertained in the division of birds and the offices of the Assistant Secretary as guests of Doctor Wetmore, Doctor Richmond, and Mr. Riley.

At the time of the meeting described above and for three weeks longer, a historical exhibit dealing with ornithology was displayed in six table cases near the auditorium. This exhibit consisted of a series of 64 portraits of deceased ornithologists and explorers, with specimens of about 140 species of birds named in their honor; specimens from the early collection of Theodore Roosevelt; specimens collected over 100 years ago; various manuscripts of deceased ornithologists; and similar matters.

On the evening of February 28, 1928, members of the Geological Society of Washington were given a special view of the geological collections in the National Museum. From 8 to 10.30 o'clock, members of the department of geology conducted the visitors through the laboratory of the division of vertebrate paleontology and the exhibition halls containing geological exhibits on the first and second floors.

From March 1 to 3, 1928, a special display of the work in nature study in the district schools from the fourth to the eighth grades was arranged in the foyer and the auditorium lobby under Miss Esther W. Scott, teacher of elementary science. The exhibit drew attendance from all of the grades concerned in the district.

On the afternoon of March 29, 1928, from 4 to 5.30 o'clock, in the main hall, first floor, of the Smithsonian Building, an informal reception was tendered by Secretary and Mrs. Abbot to the members of the bureaus under the direction of the Secretary of the Smith-

sonian Institution. The guests were received by Doctor and Mrs. Abbot and Doctor and Mrs. Wetmore.

The tenth annual meeting of the American Society of Mammalogists was held at the Museum from April 10 to 14, 1928, with an attendance of about 100 members. An exhibition of the work of American mammal artists held in connection with this meeting was installed in the foyer from April 1 to 15. During the period of the meetings a special exhibit of recent cetaceans, under the arrangement of Gerrit S. Miller, jr., was shown daily by H. H. Shamel, of the division of mammals. Another special exhibit demonstrating small traps and trapping, under the arrangement of Vernon Bailey, of the Biological Survey, was displayed in the division of mammals. This appeared to be of universal interest as groups of visiting members were constantly viewing and examining the large display. The auditorium of the Museum was given over to the society for its use on April 11, 12, and 13, and special meetings were held in room 43 on April 12 and 13.

On April 16, 1928, the annual meeting of the American Society of Ichthyologists and Herpetologists was held in room 43 of the Natural History Building. Numerous papers were read and the members inspected the division of reptiles and batrachians.

On June 21 there was a special meeting in the Arts and Industries Building when members of the Chamber of Commerce of St. Louis and other sponsors of the Lindbergh flight visited Washington en route to Europe to study recent developments in aviation. A group of 100 persons assembled for a brief ceremony beneath Colonel Lindbergh's plane, the *Spirit of St. Louis*, when a silver medal commemorating the first New York to Paris flight was presented to the Smithsonian Institution. The secretary responded with a brief address in which he expressed the thanks of the Institution to those closest to Colonel Lindbergh in his great venture for the privilege of exhibition of the plane in the Museum halls where it has attracted widespread public attention and interest.

CHANGES IN ORGANIZATION AND STAFF

The organization of the Museum remained without change during the year, the action of Congress in making possible on July 1, 1927, the first promotions under the efficiency ratings having a tendency to stabilize the Museum force. The turnover for the year was less than the preceding year, though the depletion of the force through death was unusually great.

In the department of anthropology an honorary appointment as collaborator in ceramics was given on January 11 to Dr. Samuel W.

Woodhouse, jr., who for some time has been associated with the Institution in connection with the art collection given the National Gallery of Art by the late Alfred Duane Pell. The division of Old World archeology, after the death of Doctor Casanowicz, was placed under the general supervision of Neil M. Judd, curator of American archeology. Mr. Judd, who was on furlough at the beginning of the year, carrying on field work for the National Geographic Society, returned to his Museum duties on December 1. On June 15, 1928, Henry B. Roberts was temporarily appointed archeological assistant to work on the Old World collections. T. Dale Stewart, aid in physical anthropology, was absent on furlough from October through May to continue his college studies.

In the department of biology, three well-known scientists who have collaborated with the Museum for some years were recognized by appointments to honorary positions on the Museum staff. Robert A. Cushman was made assistant custodian of hymenoptera in the division of insects on September 21; Arthur Cleveland Bent was made collaborator in the division of birds on December 1, and Dr. Joseph A. Cushman was appointed collaborator in foraminifera in the division of marine invertebrates on January 26.

The other changes in the department of biology were in the division of plants. Paul C. Standley, associate curator, resigned on May 31. Ellsworth P. Killip, aid, was advanced on December 1 to an assistant curatorship and on June 1 to be associate curator; and Emery C. Leonard on the latter date was made assistant curator.

In the department of geology, Dr. W. T. Schaller was on February 27 given an honorary appointment as associate in mineralogy. Erwin R. Pohl, aid in paleobotany, was granted a furlough for a year on November 14, and the position was filled by the appointment on December 16 of a senior clerk, Miss M. F. Willoughby.

In the department of arts and industries Frank A. Taylor, aid in mineral and mechanical technology, was absent on furlough from October 12 to June 15 to enable him to complete a course at the Massachusetts Institute of Technology. Ralph C. Smith, who had been on furlough, resigned his position as aid in graphic arts on October 7, 1927.

Three employees left the service through the operation of the retirement act, as follows: Columbus M. Sorrels, watchman, after 36 years' service; Robert Campbell, a laborer at the Museum for 33 years; and Thomas Hamilton, laborer, after 23 years at the Museum.

Miss Elizabeth Ward Lamon, principal clerk-stenographer in the administrative office, after a Government service of 30 years, was granted an indefinite furlough to regain her health.

The Museum lost through death Dr. Joseph Nelson Rose, associate curator of plants; Mr. Bradshaw Hall Swales, honorary assistant curator of birds; Dr. Immanuel Moses Casanowicz, assistant curator of Old World archeology; Joseph Mace, who served the Museum as teamster for over 50 years; Bernard W. Burdine, oiler, with 40 years' service; Samuel J. Lancaster, watchman, with 33 years' service; Carter E. Collins, laborer, for 30 years; Edwin J. Weiskoff, electrician for 17 years; Edgar Furbush, watchman, with 6 years' service; and Frank Nash, laborer, with 2 years' service.

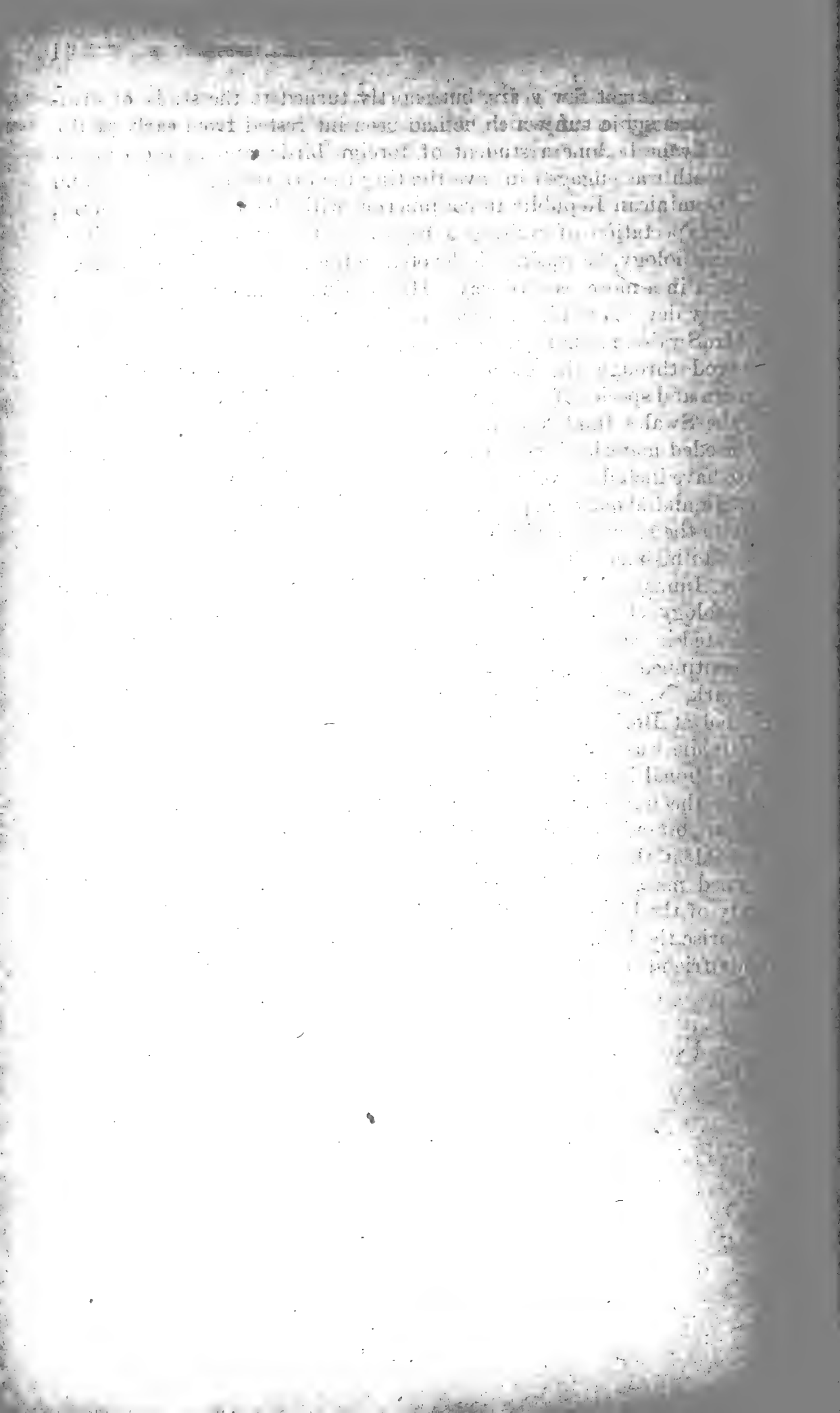
Joseph Nelson Rose, associate curator of the division of plants in the National Museum, died May 4, 1928. Doctor Rose was born in Union County, Ind., January 11, 1862. He graduated from Wabash College in 1887, was assistant in botany there from 1886 to 1888, and took the degree of Ph. D. in 1889. From 1888 to 1896 he was assistant in botany in the Department of Agriculture, and by transfer on July 1, 1896, became connected with the National Museum as assistant curator in the division of plants. In 1905 he was promoted to associate curator, a position he held for 23 years, interrupted from 1912 on by some periods of furlough devoted to the study of the Cactaceae under the auspices of the Carnegie Institution. For 40 years he was thus connected with the National Herbarium, which in that time grew from comparative insignificance to one of the largest in the world. His most important scientific work was on the Cactaceae, Crassulaceae, Umbelliferae, Amaryllidaceae, and certain other difficult families of plants, conducting his researches mainly under the Smithsonian Institution. For several years he was engaged in a special investigation of the cactus family for the Carnegie Institution of Washington. In the pursuit of this work he traveled extensively in the western United States, Mexico, and South America. The final results of these studies were published by that institution in four monumental volumes illustrated by colored plates. In his personal relations with his colleagues Doctor Rose showed unvarying tolerance and kindness, happy attributes of a life devoted to scientific research. Vigorous and active until a few months previous to his decease and with remarkable stoicism during his last days of physical weakness, he continued in his office until the afternoon before his death.

Bradshaw Hall Swales, associated with the Museum in an honorary capacity, first on August 20, 1918, as honorary custodian, section of birds' eggs, and since November 17, 1921, as honorary assistant curator of birds, died January 23, 1928, after a lingering illness. Mr. Swales was born June 30, 1875, in Detroit, Mich., where he chiefly resided during the early part of his life. He graduated in law in 1897 from the University of Michigan, and engaged in legal practice

in Detroit for a few years, but shortly turned to the study of ornithology, a subject in which he had been interested from early youth. Latterly he became a student of foreign birds, and at the time of his death was engaged in investigating the ornithology of Haiti and the Dominican Republic in conjunction with the assistant secretary, with expectation of writing a report on the subject. In addition to ornithology, he was much devoted to the pursuit of anthropology, though in a more passive way. His writings number over 100 titles, entirely devoted to birds, chiefly to those of his native State.

Mr. Swales, realizing the handicap under which local ornithologists labored through the absence in the national collections of many genera and species of foreign birds, in 1918 established a fund, known as the Swales fund, for the acquisition by purchase or exploration of needed material here. The fruits of this generous cooperation to date have included over 2,000 specimens, of which nearly 60 represent genera and about 590 species new to the Museum, truly a wonderful gift to the science to which his life was devoted and a lasting monument to his memory.

Dr. Immanuel Moses Casanowicz, assistant curator of Old World archeology, died September 26, 1927. Born in Russia in 1853 and educated in Switzerland, he came to the United States in 1876, where he continued his education at the German Evangelical Seminary of Newark, N. J. He taught four years in the German Theological School at Bloomfield, N. J. Entering Johns Hopkins for his doctorate, he was awarded a Ph. D. in 1892. In that year he came to the National Museum as preparator in the division of oriental studies under the immediate supervision of Dr. Cyrus Adler. In 1906 he was appointed assistant curator of Old World archeology, a position he held at the time of his death. Doctor Casanowicz was a most learned man, displaying profound erudition in the pursuit of his study of the history of religions. Numerous writings on this subject comprise the bulk of his publications. Kindly, helpful, and wise, he made friends of all who knew him.



DETAILED REPORTS ON THE COLLECTIONS

REPORT ON THE DEPARTMENT OF ANTHROPOLOGY

By WALTER HOUGH, *Head Curator*

INTRODUCTION

The work of the department during the year was satisfactory in quality and volume, and additions to the collections were important and scientifically valuable. Several members of the staff have prosecuted field work in Alaska, Washington, Oregon, Idaho, Kentucky, Florida, the Dominican Republic, and in Europe. Parties in the field at the close of the fiscal year include Henry B. Collins, jr., at St. Lawrence Island, Alaska, and Neil M. Judd on a reconnaissance of caves in Russell County, Ky.

ACCESSIONS FOR THE YEAR

The accessions numbered 117, or 31 less than last year. The specimens totaled 4,414 compared with 12,974 of the previous year. Since most of the material was collected in the field by trained men, its scientific value is outstanding.

In ethnology, Henry B. Collins, jr., and T. Dale Stewart, collected 1,430 specimens on Nunivak Island, Alaska, consisting of worked ivory, bone, stone, pottery, and wood, representing a comprehensive index of the culture of these Eskimo. Herbert W. Krieger collected on the Yukon, Alaska, many specimens of ethnologica, including a series of masks prepared for ceremonies, and implements of stone, ivory, and other materials. Mrs. Mary Vaux Walcott presented an ancient Eskimo ivory pick head; T. S. Scupholm, seven Eskimo implements of bone and ivory; and Rev. John W. Chapman, eight specimens of Eskimo ethnologica. Other Eskimo specimens were an excellent fur parka of an old type seldom seen nowadays from Mrs. Ann G. Miller, and six pieces of Eskimo costume from A. C. Bent, as gifts. From Southwest Africa, a region hitherto unrepresented in the Museum, Oscar T. Crosby brought as a gift 40 specimens of the ethnology of Bushmen. A specially interesting Indian lacquer box, 200 years old, was given by Mrs. R. L. Pendleton. In the distribution of the dolls sent from Japan as an offering to American children the Federal Council of the Churches of Christ

in America allotted to the Museum "Miss Japan," a beautifully costumed doll, with accessories numbering 53 pieces. J. L. G. Ferris gave to the division 37 pieces of folk costume from Spain, Morocco, Turkey, and other countries. Dr. Horace N. Allen, formerly United States Minister to Korea, gave 116 articles of Korean ethnology which had formerly been recorded as a loan. The Supreme Council of the Ancient and Accepted Scottish Rite of Freemasonry, Southern Jurisdiction, gave to the division 305 specimens of ethnologica, principally American Indian, consisting of quill work, beaded parts of costumes, weapons and similar materials, some of them quite rare.

In American archeology current accessions deserving special notice were: 199 specimens from a late Basket Maker village, 9 miles east of Pueblo Bonito, Chaco Canyon, N. Mex., and from a near-by early Pueblo structure, collected by Dr. F. H. H. Roberts, jr., and transferred by the Bureau of American Ethnology; 111 bone and shell implements, potsherds, and other aboriginal implements collected near Samana Bay, Dominican Republic, by Herbert W. Krieger, during work financed by Dr. W. L. Abbott; 26 atlatl spearshafts, sandals, and textile fragments, collected for the Bureau of American Ethnology from caves near El Paso, Tex., by Dr. F. H. H. Roberts, jr., and transferred by the bureau to the national collections; a gold disk found in a mound at Fort Simon Drum, Fla., and presented by Tom Conyers; six plaster casts of chipped blades associated with the remains of extinct mammals from New Mexico, Texas, and Oklahoma, presented by the American Museum of Natural History; 182 stone, bone, and shell objects collected by Herbert W. Krieger from various sites in the Columbia River drainage of Washington and Oregon, and transferred by the Bureau of American Ethnology; 39 stone graters, pestles, and celts and a considerable number of clay figurines collected by Dr. A. Wetmore near Constanza, Dominican Republic; 54 earthenware vessels and fragments, stone and bone ornaments, collected by Neil M. Judd at and near Pueblo Bonito, Chaco Canyon National Monument, N. Mex., and presented by the National Geographic Society. The Bureau of American Ethnology, as heretofore, added materially to the national collections, the additions from this source amounting to eight accessions, including 467 specimens.

The division of Old World archeology received a considerable addition to the collection of French prehistoric archeology in the deposit of specimens by the Archaeological Society of Washington, collected by the American School of Prehistoric Studies in France under Dr. George Grant MacCurdy, collaborator in anthropology. Doctor MacCurdy himself contributed six ancient worked flints from France. Through exchange with the Indian Museum, Calcutta, 94 prehistoric stone implements were added to the collection from that

country. Also by exchange, 74 stone implements were received from the National Museum, Melbourne, Australia. Other Australian stone implements came by exchange from A. S. Kenyon. The South African Museum sent as an appreciated gift seven stone-age implements from that area.

The most valuable accessions in the division of physical anthropology were the following: A collection of 233 skulls, skeletons, and individual parts, from the western Alaska coast south of the Yukon, mainly from Nunivak Island, collected by Henry B. Collins, jr., and T. Dale Stewart, both of the Museum staff; a collection of 101 skulls, skeletons, and individual parts, from Captiva Island, Charlotte Bay, west coast of Florida, secured by Henry B. Collins, jr., and transferred to the Museum by the Bureau of American Ethnology; the carefully prepared brains of one full-blood Eskimo and two Alaska Indians, in excellent condition, a gift from Dr. Charles Firestone, of Alaska; 35 crania, lower jaws, and miscellaneous bones, from the Sacramento Valley, Calif., donated by Mrs. M. C. C. Van Loben Sels; 9 Eskimo skulls, donated by George R. Goshaw, Shishmaref, Alaska; and 7 old Dutch skulls, presented by H. Postma.

INSTALLATION AND PRESERVATION OF COLLECTIONS

In ethnology many minor installations were made in the public halls, and rearrangements were undertaken to improve the exhibit artistically and to expedite the matter of visual education. Especial thanks are due Mrs. Ward for advice and criticism concerning improvements needed in the Herbert Ward African Collection. For this collection individual labels were written, the bronzes cleaned, and a new system of lighting installed. Mrs. Gertrude Bass Warner furnished suggestions by which the group given by her exhibiting Chinese Imperial costumes was completed. Type specimens from the large Dutch New Guinea collection of Matthew W. Stirling were installed, being the first Pigmy material exhibited from that region. Bagobo material, interesting in its decorative designs on arms and textiles, from the collection of Gen. Tasker H. Bliss, United States Army, was put on view. Western Chinese ethnologica collected by Rev. David C. Graham were installed in the Asiatic Hall. With these were shown costumes, jewelry, and textiles from the same region, gift of the National Geographic Society. Chinese porcelains and bronzes were installed in three centrally located Chinese pagodas. A Japanese doll about half life size named "Miss Japan," with accessories in the form of a ceremonial tea service and miniature furniture, was exhibited in a special case. A series of individual collector's exhibits were installed to further interest in the Bering Sea

region. Included are specimens from the collections of Doctor Hrdlička, Henry B. Collins, jr., and the Lomen brothers. Masks of the Tinne Indians of the middle Yukon Valley, birch bark baskets, and an ivory inlaid wooden food box presented by Rev. and Mrs. John W. Chapman, of Anvik, Alaska, were placed on exhibit. Plains Indian collections from Mrs. Joseph T. Clarke and Col. Charles H. Heyl formed an attractive exhibit. The General Bell Indian collection was transferred to a large wall case.

In American archeology, the Texas exhibit, meager at best, was altered and enlarged upon receipt of the cave material collected by Doctor Roberts, and transferred from Bureau of American Ethnology. A lay-figure group illustrative of prehistoric cliff-dweller life, designed by the curator and modeled by W. H. Egberts, of the Museum staff, added much of interest to the East Hall, in which cultural objects of the prehistoric Pueblos are displayed. With other similar groups, this helps to provide an understanding of the human life of the time so essential in the exhibition of archeological specimens; two or three additional groups, representing primitive man at his daily activities, will enhance the educational value of the collections. Both the exhibition and study material of the division are in better condition than ever before.

Several minor installations were made in the division of Old World archeology of material recently acquired and on hand, and labels attached to specimens.

New items of value were added to the public exhibits of the division of physical anthropology in the northwest corner of the first floor, as well as to the cases on the third floor. The study collections, of great and steadily growing value, were consulted or studied by an ever-increasing number of investigators. The present status of the collections is unsatisfactory in but one respect, and that is in accommodation. The system of storage in steel racks and dustproof boxes is becoming so that due order is difficult.

The anthropological laboratory under the direction of W. H. Egberts completed the Cliff House group for American archeology and made many changes, restorations, and repairs on the Museum exhibits in anthropology and other departments. For the United States Naval Observatory a restoration was made of a scene in oil colors on an old clock long in the observatory.

The Hugo Worch collection of pianos was kept in order by the special efforts of George McCoy. Data for labels furnished by Mr. Worch went to the printer, and some of the labels were placed on the instruments.

Ceramics received four accessions of 10 specimens, all as gifts. The Morgan Belleek China Co., of Canton, Ohio, presented a tea set

of seven pieces of their excellent art chinaware; Mrs. James S. Harlan presented a golden vase, the work of the Misses M. and E. Healey; Stockton W. Jones gave a Staffordshire pottery vessel; and Dr. and Mrs. Walter Hough a glass candlestick made in the factory of Albert Gallatin at New Geneva, Pa., in 1812. The collection was rearranged in part and is in good order.

Art textiles received two accessions of 15 specimens. Mrs. James S. Harlan contributed a number of panels of European brocade, enamel watches and cases, and silver jewelry; and Miss Elsie Ken-easter a tape lace collar. The installation of the hall was kept at a high standard by R. A. Allen.

INVESTIGATION AND RESEARCH

When not engaged in field work, Henry B. Collins, jr., of the division of ethnology, devoted his time to the study of skeletal material and pottery collected by him in Mississippi, Louisiana, and in western Alaska. He also continued the study of crania in the division of physical anthropology, more particularly the frequency and distribution of the fossa pharyngea. These studies have resulted in five publications, listed in the bibliography. Herbert W. Krieger continued the examination of cultural material gathered by him and others in the valleys of the Yukon, Columbia, and Snake Rivers. He also spent some time in working over material recently collected by him in southeast Alaska and in the Dominican Republic. These studies resulted in four publications, three of which are listed in the bibliography and one is in press.

Dr. Franz Boas, of Columbia University, was assisted in preparing data regarding the coiled basketry of the Pacific Northwest, a study that is to appear in the annual report of the Bureau of American Ethnology. Aid was also extended to Doctor Boas in preparing data for a book on primitive art. Warren K. Moorehead was aided in his preliminary studies of American stone axes and celts. N. C. Nelson examined the collections of aboriginal objects from the basin of the Columbia, and Moses Cotsworth was supplied with information pertaining to primitive American calendar systems. Workers from the Department of Agriculture consulted our files for photographs pertaining to aboriginal American agriculture and to racial types. Many individual callers with problems of a more or less difficult nature consulted with the head curator. His valuable aid and mature judgment in ethnological questions relieved the division's staff of many difficult moments and supplied a valuable service. In preparing data for correspondence time is often necessary to study questions asked. The following indicate some of the stock questions brought to the division: The criteria of a good Navaho rug; data on

Paisley and Cashmere shawls; data regarding the Catlin collection of paintings; information relating to Indian costumes; questions on primitive technology; archery; data on primitive art; information on Chinese and Japanese art; advice regarding public pageants; and other similar matters. The British Museum of Natural History was supplied with photographic prints of stone implements from peoples of the Pacific.

The customhouses of Georgetown and Baltimore, and the parcel-post division of the Post Office Department were aided in dating and giving valuations of materials going through the offices. The Federal Trade Commission was given data on Navaho blankets in a case of falsification. The Department of the Interior called a number of times for advice on the granting of permits to explore on public lands. The Patent Office, as in other years, consulted the collections for data on the granting of certain patents. The Marine Band was aided in securing a photograph of a rare musical instrument in the collection. The Department of Agriculture secured specimens and data for moving pictures. Many schools seeking information on definite subjects were shown the collections. Science Service and many newspaper and magazine writers were supplied with required information. Numerous callers with specimens for identification featured in the work of the year.

Neil M. Judd, curator of American archeology, continued his researches on the ancient culture revealed at the great stone structure called Pueblo Bonito, in New Mexico, and progressed with a report on the work. During the fiscal year N. C. Nelson, of the American Museum of Natural History, New York; Dr. Carl E. Guthe, of the University Museum, University of Michigan, Ann Arbor, Mich.; Henry A. Carey, graduate student of Columbia University, New York City; and Baroness Renate Baillou, graduate student at Bryn Mawr College, Pennsylvania, pursued brief researches on the collections in the division. The curator continued, unofficially, personal contact with anthropologists of all leading research institutions in the United States. In addition, he continued to serve as a member of the executive committee, Division of Anthropology and Psychology, National Research Council, and as trustee and chairman of the research committee, Archaeological Society of Washington. The National Park Service, various bureaus in the Department of Agriculture, and the National Geographic Society repeatedly called upon the curator, unofficially, for advice concerning archeological matters.

The curator of physical anthropology carried on researches on early man in general, and on the antiquity of man in America. He supervised further measurements of immigrants, and carried on a

study of quadruped progression and other atavistic behavior in human children, and some minor researches. T. Dale Stewart, aid in the division, took, under instruction of the curator and in association with Henry B. Collins, numerous measurements, observations, and photographs on the Eskimo of Nunivak Island and nearer parts of the Alaskan coast. Henry B. Collins, jr., of the division of ethnology carried on original work both in Alaska and on the collections. Investigators who utilized the collections of the division included the following: Prof. H. M. Allyn, Vassar College, instruction in anthropometry; Dr. Gustaf Bergfors, Upsala, Sweden, study of racial skulls; C. J. Connolly, Catholic University, Washington, D. C., studies on facial growth and development; Dr. Milo Hellman, New York City, studies on jaws and teeth; M. Emetaz, Montclair, N. J., instruction in anthropometry; Prof. W. H. Sherzer, Michigan State Normal College, instruction in anthropometry; Dr. H. H. Briggs, Asheville, N. C., studies on the development of the face; Dr. G. S. Monson, Minneapolis, studies of teeth and jaws, also measurements of skulls; Dr. D. S. Higkin, Baltimore, Md., studies of lower jaw and occlusion of teeth; Dr. H. U. Williams, Buffalo, N. Y., studies in prehistoric pathology; Dr. John M. Ingersoll, Cleveland, Ohio, study of sinuses; Dr. Ralph G. Mills, Mayo Clinic, Rochester, Minn., preparation of bones; Katherine T. Schindel, Public Health Service, Washington, D. C., instruction in anthropometry; Miss S. Jeffries, Public Health Service, Washington, D. C., instruction in anthropometry. The curator made three visits to other institutions for the study of additional Eskimo and Alaska skeletal remains, needed in connection with his work on Alaska and for the catalogue of crania that is being published by the National Museum. May 1 to 5 he went to the Wistar Institute, Philadelphia, Pa., for the examination of 87 crania from old igloos near Point Barrow; June 11 to 13, to the National Museum of Canada, Ottawa, where he examined 85 crania of Eskimo and Northwest Indians; and June 14 to 15, to the American Museum of Natural History, New York, where he examined 153 skulls of Eskimo and British Columbia Indians.

Sixty-five lots of specimens were received in the department for examination and report during the year.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

A total of 203 specimens was distributed from the division of ethnology. These included eight gifts, comprising 184 specimens; two exchanges of four specimens; and three withdrawals including 15 specimens. Two loan collections totaling 99 objects were sent out during the year. Colored plaster casts of three ivory objects from

the Eskimo of Alaska were prepared for the Alaska Agricultural College and School of Mines. Colored plaster casts of an Eskimo stone lamp were forwarded to the library and museum at Juneau, Alaska; a cast of the same lamp was given to the New York State Museum; and still another cast of this very unusual specimen was sent to Gov. G. A. Parks, Juneau, Alaska. Ninety-seven ethnological specimens of the American Indian and Eskimo of Alaska were loaned for purposes of exhibition to the Newark Museum Association, Newark, N. J. The newly established Hastings Museum, Hastings, Nebr., received as a gift 96 ethnological specimens; the Washington Memorial Library, Macon, Ga., received 19 examples of Pueblo pottery; and 37 specimens of Indian handicraft were forwarded to the San Antonio Museum Association, San Antonio, Tex. Southwestern Indian pottery totaling 23 pieces was given to the Edward K. Warren Foundation, Three Oaks, Mich., while a later gift to the same institution consisted of six items of shells and beads used as media of exchange by and with the early Indians.

Seven lots of material went from the division of American archeology to other institutions or to individuals as follows: 21 miscellaneous stone artifacts, presented to the Hammel School of Music, Davenport, Iowa; a set of District of Columbia potsherds, forwarded as a gift to the "Ceramic Repository for the Eastern United States," under the auspices of the National Research Council, at the University of Michigan, Ann Arbor, Mich.; a cast of a sculptured pestle from Massachusetts, presented to the Peabody Museum of Harvard University; 65 miscellaneous stone implements from the United States forwarded to the National Museum, Melbourne, Australia, in exchange for 74 aboriginal Australian artifacts; 38 archeological specimens sent to A. S. Kenyon, Melbourne, Australia, in exchange for prehistoric material from various parts of Australia; a cast of a stone ax sent to the Alaska Agricultural College, Alaska, in return for the courtesy of reproducing the original; a cast of a shell ornament sent to D. E. Newland, Wytheville, Va., in acknowledgment of his courtesy in permitting the Museum to reproduce the original.

Three lots of specimens were sent to outside investigators by the division of physical anthropology; the first, comprising a series of prehistoric pathological bones, to Prof. Herbert U. Williams, of the Buffalo University Medical School; the second, consisting of several isolated temporal bones from prehistoric crania with bony tumors in the meatus, exchanged with Dr. Roy L. Moodie, Santa Monica, Calif.; the third, an exchange with Prof. R. J. Terry, department of anatomy, Washington University, St. Louis, Mo., in which, for seven skulls of various races were received eleven skulls of white

women. One loan of 10 specimens from the brain collection was made to the Washington Society for Nervous and Mental Diseases, Washington.

From the section of ceramics four loan collections, comprising 152 specimens, were withdrawn. In the section of art textiles two loan collections, including six specimens, were withdrawn.

NUMBER OF SPECIMENS UNDER DEPARTMENT

During 1927-28 the department of anthropology received 117 accessions with a total of 4,414 specimens. Only three accessions, comprising 577 specimens, were loans, resulting in the permanent addition to the collections of 3,837 specimens. The inflow was distributed as follows: Ethnology, 41 accessions with 2,266 specimens; American archeology, 42 accessions and 892 specimens; Old World archeology, 13 accessions of 765 specimens; physical anthropology, 29 accessions, with 466 specimens; ceramics, 4 accessions of 10 specimens; and art textiles, 2 accessions with 15 specimens.

On June 30, 1928, the total number of specimens in the department was 672,173, as follows:

Ethnology	166, 095
American archeology.....	430, 225
Old World archeology.....	35, 668
Physical anthropology.....	30, 987
Musical instruments.....	2, 068
Ceramics	5, 682
Art textiles.....	1, 448
Total.....	672, 173

1918

STATE OF TEXAS

Department of Agriculture
Office of Plant Industry
Austin, Texas
The following is a list of specimens
collected during the summer of 1918
at the following localities:
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REPORT ON THE DEPARTMENT OF BIOLOGY

BY LEONHARD STEJNEGER, *Head Curator*

The completion of a steel balcony in the western half of the Herbarium Hall in the Smithsonian Building, and the consequent shifting and rearrangement of the entire phanerogamic collection of plants (except the grasses), is not only the outstanding feature of this year's development in the division of plants, but is of the utmost importance to the entire Department of Biology because the final accomplishment carries with it the hope that similar relief may be obtained in the not distant future for other divisions equally crowded. Attention has been called from time to time to the fact that specimens in the collections of various divisions are dangerously crowded, and that in some, working room for the handling of material is uncomfortably cramped. As a consequence, not only are specimens liable to deterioration, but an undue amount of time is required for their care and handling by a personnel which under the best possible conditions is inadequate in numbers for the better interests of the Institution and science at large.

Through a series of coincident circumstances, activities in the field, both of members of the staff and of friends and collaborators of the Museum, have been rather under normal. The investigations in Haiti and the Dominican Republic which began a few years ago have been continued by Arthur J. Poole, who, through the generosity of Dr. W. L. Abbott, was enabled to spend over three months in a thorough exploration of the well-known caves near San Michel, Haiti, and G. S. Miller, who at his own expense visited the region of Samana Bay. Dr. J. M. Aldrich, at his own expense, undertook an entomological collecting trip to the West, including the eastern part of Nevada, the higher part of the Sierra Nevada in California, and the Yellowstone Park, with highly satisfactory results.

An investigation of the fauna at Matamek River on the north shore of the Gulf of St. Lawrence by Mr. and Mrs. Paul Bowman, under the direction of Doctor Bartsch, was made possible by the kind invitation of Copley Amory. Another invitation by William N. Beach and Marcus Daly of New York, for a member of the Museum staff to accompany their expedition to the Sudan, resulted in the detail of William L. Brown to collect for the Museum. Dr. Hugh M. Smith and Dr. D. C. Graham, whose explorations in Siam and Western China, respectively, have enriched the Museum collections

so conspicuously in previous years, have only returned to their fields during the present year. The botanical expeditions to Honduras by Mr. Standley, and to Formosa and Sumatra by Prof. H. H. Bartlett, a collaborator, were notably successful. These and other activities of a similar nature are detailed fully elsewhere in the report of the Assistant Secretary.

The head curator at his own expense visited a number of European museums for the purpose of examining type specimens and other material in connection with his monograph on the American turtles, and to locate and recover various collections lent to European scientists before the war. He was official delegate of the United States and the Institution at the International Zoological Congress held in Budapest at the invitation of the Hungarian Government.

ACCESSIONS FOR THE YEAR

Judged by the number of specimens accessioned, the year is one of the most prosperous of the department. The total number of accessions was 1,262, or about the average, but the total number of specimens received and cared for reached the unprecedented number of 680,350, or more than half a million specimens above the number for the previous year. The increase is particularly due to the receipt of several large private collections by bequests, and denotes a growing recognition on the part of individuals that the National Museum is the most suitable depository for their valuable treasures, as here they will be cared for and held accessible to future scientific investigators.

Two valuable sources for material which have added to the collections are the two funds which in recent years have been bequeathed to the Smithsonian Institution for the benefit of this department, namely, the Frances Lea Chamberlain Fund, through which it is possible to acquire desirable material for the Division of Mollusks, and the Walter Rathbone Bacon Scholarship, which provides means for faunal studies in territory outside the United States, the material collected to come to the National Museum. Dr. Waldo L. Schmitt, the last beneficiary of this scholarship, while primarily investigating the carcinological fauna of South America, incidentally gathered a great collection of other marine invertebrates, as well as algae, insects, fishes, batrachians, reptiles, birds, and mammals, which were accessioned during the present year.

The private collections that have been received, namely, the C. F. Baker collection of East Indian insects, which came by bequest, the Charles W. Hargitt hydroid collections, and the C. G. Lloyd mycological collection, will be treated of specifically under their respective divisions and are of outstanding importance.

Valuable collections gathered by Dr. Hugh M. Smith, Director of Fisheries, Bangkok, Siam, an honorary associate curator in zoology, United States National Museum, accessioned during the present year, consist of numerous specimens of mammals, birds, reptiles, and fishes, as well as insects, mollusks, and other invertebrates. The Museum is under continued obligation to Col. R. S. Clark for the valuable Chinese material collected by A. de C. Sowerby from which source came mammals, fishes, and marine invertebrates. The African expedition mentioned above, through the kindness of William N. Beach, Marcus Daly, and Osgood Field, enriched the Museum with numerous mammals, birds, and fishes. The explorations of G. S. Miller, jr., and A. J. Poole in Hispaniola resulted in fine collections of reptiles, mollusks, and other invertebrates, in addition to the cave material gathered.

Mammals.—Siamese and Chinese mammals collected by Dr. Hugh M. Smith and Arthur de C. Sowerby have been already mentioned. As another important addition there is noted a collection of 192 mammals made by C. Boden Kloss on the islands of Sipora and Siberut off the west coast of Sumatra, which the Museum owes to the continued generosity of Dr. W. L. Abbott. Among 49 mammals secured by the Beach African expedition are four gazelles which are to be mounted for the exhibition series. Large collections of bones of extinct mammals from kitchen-middens and caves in Hispaniola secured by G. S. Miller, H. W. Krieger, and A. J. Poole have been previously alluded to. Eight female gorilla skulls were obtained by purchase and form a very important addition because of the scarcity of gorilla skulls of this sex in museums. Another valuable addition was a porpoise skull of a species hitherto unrepresented in the collection from the south shore of Falkland Island. This was collected for the Museum by Dr. Waldo L. Schmitt.

Birds.—The series of 439 skins, 13 skeletons, 21 eggs, and 2 nests from Siam secured by Dr. Hugh M. Smith, constituted the largest accession and supplemented in an admirable way previous collections. From B. H. Swales and A. Wetmore there were received 206 skins, 88 skeletons and alcoholics, and 10 eggs from Haiti and the Dominican Republic. The actual field work was performed by Doctor Wetmore last year but the material was received too late for inclusion in that year's report. Among other desirable specimens were representatives of a new species of thrush (*Haplocichla swalesi*). The endeavors of this division to close the gaps in its series of genera have been very successful during the year as several valuable additions were received in exchange from other institutions. Among the species thus acquired may be mentioned *Rhodonessa caryophyllacea*, *Thamnocharis dignissima*, *Nesoenas mayeri*, and

Amaurospiza concolor. The late B. H. Swales also contributed 4 genera and 26 species new to the Museum, among them a heron, *Erythrocnus rufiventris* and a swift, *Nephoecetes fumigatus*. Another rare species new to the Museum, the dwarf tinamou (*Taoniscus nanus*) was donated by Dr. A. de E. Taunay, of Sao Paulo, Brazil. From the Beach Sudan expedition were received skins and skeletons of the open-billed stork (*Anastomus lamelligerus*) and a number of other desirable species, including an excellent series of birds in alcohol. Over 100 skeletons from Cameroon, West Africa, mostly of birds hitherto unrepresented in that form in the Museum were secured through Jacob Reis. Other additions to the collection of skeletons includes 18 received in exchange from the Bureau of Science, Manila, among them 2 trunk skeletons of the monkey-eating eagle (*Pithecophaga jefferyi*), and the skeleton of a shoe-bill stork (*Balaeniceps rex*) transferred by the National Zoological Park.

Reptiles and batrachians.—The most interesting collections received were the three from the island of Hispaniola, namely, one made a year ago by Dr. A. Wetmore in Haiti and the Dominican Republic, containing a new genus and two new species, recently described by Miss Cochran, and two large collections of over 500 specimens each from the Samana region, Dominican Republic, and San Michel, Haiti, by G. S. Miller, jr., and A. J. Poole, respectively.

Fishes.—One of the most valuable accessions of fishes received in recent years consisted of 1,743 specimens collected by Arthur de C. Sowerby during the past three years in Chinese waters contiguous to Shanghai. A collection of 668 specimens from the west coast of South America secured by Dr. W. L. Schmitt during his travels under the auspices of the Walter Rathbone Bacon Scholarship is of considerable importance, likewise the 65 specimens collected between Khartoum and Rejaf by the Beach African expedition. Among the specimens received from Dr. W. H. Longley, Goucher College, and collected at the Tortugas, Florida, were the types of one new genus and two new species. Panama fishes to the number of 118 collected by Ford J. Foster were transferred by the Bureau of Fisheries.

Insects.—The principal collection received, and one of the notable additions in the history of this division, is the C. F. Baker collection of East Indian insects. Professor Baker, after active career as a collector in the New World, went to the Philippines as professor in the College of Agriculture. He subsequently became dean of the college, and died there on July 22, 1927. During the 16 years of his residence in the Philippines he collected insects with great energy, accumulating an immense amount of material. Some years ago he made a will bequeathing to the National Museum this material. When information of his death was received last year arrangements

were made to send R. A. Cushman, honorary assistant custodian of Hymenoptera, to the Philippines to prepare and ship the collection. This duty Mr. Cushman performed with signal success and the collection was received in April of this year in perfect condition. The number of mounted specimens is believed to be about 300,000, the orders of Coleoptera, Homoptera, and Hymenoptera being especially well represented.

Second in number of specimens among the accessions of the year, is the George M. Greene collection. Mr. Greene is a Pennsylvania collector whose interest has been chiefly in Coleoptera. His collection comprises nearly 50,000 specimens which are especially well mounted and labeled and represent many years of careful and painstaking work. The Philippine Bureau of Science, through Dr. R. C. McGregor, has continued to send generous quantities of Philippine insects, those received in the present year numbering about 35,000 specimens. Another large accession covers the continual inflow of specimens from the Bureau of Entomology, including the specimens retained from material sent for identification. For the past year this accession amounts to 28,392 specimens. Prof. A. C. Burrill, Jefferson City, Mo., donated his collection of western insects, amounting to about 3,400 specimens. Prof. T. C. Stephens, Sioux City, Iowa, gave nearly 1,000 specimens. Frank Johnson, of New York City, continued his liberal donations of the rare forms of Lepidoptera, amounting in the present year to 1,065 specimens, mostly exotic. B. Preston Clark, of Boston, Mass., continued his generosity, presenting 480 rare moths and butterflies from remote parts of the world. Dr. William Schaus, honorary assistant curator of the division of insects, purchased and presented to the Museum 450 specimens of Lepidoptera from Ecuador. In addition to the preceding, the Museum has received notable support from a considerable number of foreign collectors in many parts of the world. Among these should be mentioned: Dr. H. M. Smith, Bangkok, Siam, who sent 1,800 specimens; Dr. F. J. Meggitt, Rangoon, Burma, 500 specimens; Dr. M. Nuñez-Tovar, Venezuela, about 2,000 mosquitoes—an especially important contribution in view of the preparation by Doctor Dyar of a large work on the mosquitoes of North and South America; Dr. Walther Horn, of Berlin, donated 500 named insects, mostly from Formosa; Dr. C. P. Alexander, Amherst, Mass., gave a collection of insects from New Zealand, mostly Diptera; Alfred Philpott of Cawthron Institute, Nelson, New Zealand, presented a valuable collection of Microlepidoptera; Prof. T. D. A. Cockerell, Boulder, Colo., sent 1,396 insects from Russia and Siberia; the Rev. D. C. Graham, Suifu, China, a collector to whom we are much indebted, has resumed his work after a period of furlough in the United States,

and has already sent one shipment of insects from western China, of over 500 specimens.

Marine invertebrates.—A total of 23,554 specimens were received during the year, an increase of 5,714 over last year. Apart from 2,432 specimens, the final accession from the Bacon Scholarship in South America, the following additions to the collections deserve mention: Dr. Hugh M. Smith's Siamese and A. de C. Sowerby's Chinese collections, and that of G. S. Miller from Hispaniola; a collection of terrestrial Isopods made by James O. Maloney, of the division of marine invertebrates, during an automobile trip from Washington, D. C., to Mississippi; and a collection of about 100 lots of recent bryozoa secured by Dr. R. S. Bassler in Southern California. Among other accessions, the gift of George T. Hargitt, Syracuse, N. Y., of the Charles W. Hargitt Hydroid collections holds a preeminent position, inasmuch as it is the lifetime work of this well-known specialist. It consists of 456 microscopic slides and 690 bottles (estimated at more than 2,000 specimens) representing material upon which publications have been based. The Amory-Bowman Labrador expedition resulted in an addition of 5,221 specimens, including a very excellent and comprehensive series of amphipods. The Secretaria de Agricultura y Fomento, Direction de Estudios Biologicos, and the Direccion Forestal y de Caza y Pesca, through Dr. A. L. Herrera, Director, Señor Carlos Stansch, Mexico, D. F., presented over 300 specimens of marine invertebrates, mostly crustacea from the west coast of Mexico and Gulf of California, in part collected by Stansch. The Pacific Biological Laboratories, Pacific Grove, Calif., through E. F. Ricketts, director, donated 679 specimens of marine invertebrates from Monterey Bay, Calif., and vicinity, mostly crustacea and pycnogonids, including some new and hitherto undescribed forms. The Putnam Baffin Island expedition, George P. Putnam, director, resulted in 30 lots (dredge hauls) of marine invertebrates, with approximately 1,800 specimens secured by Capt. R. A. Bartlett, a fine lot of material from the seldom-visited waters of this region.

Further accessions were as follows: From Prof. Manuel Valerio, Lyceum of Costa Rica, San Jose, Costa Rica, 64 specimens of marine invertebrates mostly crustacea, including several new records for Costa Rican waters and the type of a new species of crab; from the University of Southern California, Department of Zoology, Los Angeles, Calif., through Dr. A. B. Ulrey, over 738 specimens of marine invertebrates mostly crustacea, of which there is a comprehensive series from the coast of southern California. Several accessions are particularly worthy of special mention because they have brought to the National Collections type specimens or material upon

which publications have been based. Such are a crayfish, the type of *Cambarus ayersii* Steele from Dr. Howard Ayers, Cincinnati, Ohio; 8 specimens of commensal copepods, including the types of two new species from H. R. Siewell, department of terrestrial magnetism, Carnegie Institution; 8 microscopic slides of two new species of fresh-water copepods, including holotypes and paratypes, from Prof. Stillman Wright, University of Wisconsin; 19 specimens of earthworms, from Prof. Gordon E. Gates, Judson College, Rangoon, Burma, paratypes of new species, descriptions of which are now in press; 1 specimen of isopod from Potter Creek Cave, Shasta County, Calif., type of a new species, from the University of California, Department of Zoology, through Dr. C. A. Kofoid. From the Bureau of Fisheries, United States Department of Commerce, came a number of accessions totaling 5,467 specimens, of which the two most important were 4,400 specimens collected in the Philippine Islands during the *Albatross* expedition of 1907-1909, and 699 specimens of crustacea secured by Harvey C. McMillan on the Pacific coast. A notable accession from the Scripps Institution of Oceanography, La Jolla, Calif., through Dr. T. Wayland Vaughan, director, included 207 slides of Foraminifera, with 13 types.

Mollusks.—The total number of specimens received this year, namely 77,756, is more than six times that of the previous year. The following accessions are mentioned as of particular value. Over 50,000 specimens in 3,671 lots, of Jamaican land shells, collected by C. R. Orcutt, were purchased from the Frances Lea Chamberlain fund. Dr. Carlos de la Torre, Habana, Cuba, donated 185 lots of mollusks, mostly types of new land shells of the family Annulariidae. Other accessions include about 1,500 mollusks collected by Dr. Waldo L. Schmitt in South America under the auspices of the Walter Rathbone Bacon Scholarship; 32 species, 41 specimens, of marine mollusks including 13 types of new species described by Doctor Bartsch, from Prof. K. Derjugin, Leningrad, U. S. S. R.; about 10,000 specimens from western India, from J. C. Bridwell, Bancroft, Va.; about 1,200 mollusks from Siam, from Dr. Hugh M. Smith, Bangkok, Siam; 137 specimens of fresh water and marine shells from Uruguay, from Dr. F. Felippone, Montevideo, Uruguay; 569 specimens of marine mollusks from Panama and Taboga Island, including types of seven new species, from Charles D. Alleman, Canal Zone; over 500 mollusks collected for the Museum by the Amory-Bowman Labrador expedition; 209 specimens of land, fresh water and marine shells from Costa Rica, from Prof. Manuel Valerio, San Jose, Costa Rica; about 3,010 mollusks from the Dominican Republic collected by G. S. Miller. The Conchology Club of Southern California donated 30 specimens of marine mol-

lusks from Ecuador, including types of 16 new species described by Doctor Bartsch. About 750 mollusks from Haiti, collected by Dr. A. Wetmore, came from the collector and the late Bradshaw H. Swales. To Señor Pedro Bermudez, Habana, Cuba, the Museum is indebted for 27 lots of topotypes of Cuban land shells, and to Dr. Carl C. Engberg, Lincoln, Nebr., for 30 land shells from Nebraska and Yellowstone Park.

Echinoderms.—The most important accession of the year was received through the Walter Rathbone Bacon traveling scholarship and consisted of a miscellaneous lot collected by Dr. Waldo L. Schmitt in South America. Other important additions to the collection were received from Señor Adolfo Cesar de Noronha, who sent some interesting sea stars from Madeira; and some sea urchins and sea stars were received from the Museu Paulista, Sao Paulo, Brazil.

Plants.—The number of accessions was 431 lots, comprising 120,621 specimens. This represents a slight loss over the preceding year in number of lots accessioned, but the number of specimens is more than twice as large and their value is quite as great. The C. G. Lloyd mycological collection, which was received through the Smithsonian Institution from the trustees of the Lloyd Library and Museum, of Cincinnati, Ohio, one of the largest and most important collections of fungi ever brought together, consists of about 75,000 specimens of the larger fungi, besides 10,000 negatives of fungus subjects, hundreds of photographic prints, halftone plates of illustrations published in Mr. Lloyd's numerous treatises, and voluminous correspondence, notebooks, and manuscript records pertaining to the specimens. The entire collection will be maintained in steel cases and fire-proof quarters as a separate unit for the use of duly qualified students of mycology. Installation of the collection and the provision of a comprehensive card catalogue relating to all the material are under way.

Other important accessions were as follows: Nine thousand specimens collected for the Museum in Honduras by Paul C. Standley; 5,456 specimens received as a transfer from the United States Department of Agriculture, of which 5,265 are from the Bureau of Plant Industry, consisting mainly of grasses and of general collections from Africa, Asia, and Arizona; 2,500 specimens of plants from Haiti and the Dominican Republic purchased from Dr. E. L. Ekman; 2,900 specimens from Formosa and Sumatra, representing a complete set of the material collected by Prof. H. H. Bartlett, collaborator, under the joint auspices of the National Museum and the University of Michigan; 983 specimens received from the School of Forestry, Yale University, chiefly material of trees and shrubs from Panama and Central America; 1,167 specimens received as an exchange from

the British Museum (Natural History), largely from Brazil, Australia, and Africa; 569 specimens received as an exchange from Universitetets Botaniske Museum, Copenhagen, Denmark, mostly consisting of Central American and Mexican material collected by Oersted and Liebmann; 763 specimens of plants from Venezuela, presented by Prof. H. Pittier, Caracas, Venezuela; 317 specimens received as an exchange from the Royal Botanic Gardens, Kew, Surrey, England, mostly collected in Colombia by Lehmann; 1,153 specimens from western Mexico, presented by Mrs. Ynes Mexia, University of California, Berkeley, Calif.; 852 miscellaneous specimens of woody plants received as an exchange from the Arnold Arboretum of Harvard University; 597 specimens from Barro Colorado Island, Canal Zone, presented by L. A. Kenoyer, Kalamazoo, Mich.; 500 specimens of Chinese plants received as an exchange from the University of Nanking, Nanking, China; 477 specimens of Uruguayan plants purchased from Dr. W. Herter, Montevideo, Uruguay; 400 specimens received as an exchange from the Botanical Garden and Museum, Cluj, Rumania; 469 specimens from Ecuador received as a gift from the Brother Gémel Firmin, Quito, Ecuador; 611 specimens, chiefly tropical American ferns, received in exchange from the Muséum d'Historie Naturelle, Botanique, Paris, France; 1,020 specimens from New Mexico received as a gift from Brother G. Arsène, Las Vegas, N. Mex.; 2,026 specimens, chiefly from the western United States received as an exchange from Pomona College, Claremont, Calif.; 598 specimens from Haiti purchased from W. J. Eyerdam, Seattle, Wash.; 331 specimens, mainly from tropical America, received as an exchange from Naturhistoriska Riksmuseets Botaniska Avdelning, Stockholm, Sweden; 336 specimens from Guatemala received as a gift from the Direccion General de Agricultura, Guatemala City; 398 specimens of native plants received as an exchange from the University of Minnesota; 451 specimens from Costa Rica, 1,811 miscellaneous specimens received as an exchange from the Academy of Natural Sciences, Philadelphia, Pa.; 709 miscellaneous specimens received as an exchange from the Gray Herbarium, Harvard University; 713 specimens of Canadian plants received as an exchange from the Université de Montréal, Montreal, through Prof. Marie-Victorin; 312 specimens from Colombia received as a gift from Brother Elias, Colegio Biffi, Barranquilla, Colombia; 225 specimens from Peru presented by Prof. F. L. Herrera, Cuzco, Peru.

INSTALLATION AND PRESERVATION OF COLLECTIONS

No large additions have been made in the exhibition halls during the year, except that a floor case in which mammals of the northern part of the Old World are exhibited which had been in storage was

reinstalled on the first floor. The case at present contains the Mongolian tiger, the European brown bear, the Manchurian black bear, and a snow leopard mounted a year ago but only now placed on exhibition. The arrangement is as yet temporary awaiting the acquisition of additional material. Two of the African mammal cases were reinstalled during the year. In the one containing the hyenas and jackals, two recently mounted specimens were added, replacing two old ones. On the second floor, in the reptile and fish hall, the alcoholic exhibit of fishes has been thoroughly overhauled and renovated. It was found that the old cement sealing the square exhibition jars had deteriorated to such an extent that rapid evaporation of alcohol greatly affected the appearance of the exhibit. A new sealing substance was tried and found serviceable, with the result that the collection now makes satisfactory appearance. By crowding the cases somewhat at the western end of the whale hall it was found possible to make room for two double slope-top table cases containing an exhibit of conspicuous and interesting mollusks prepared by the late Dr. W. H. Dall. A few casts were added to the exhibit of snakes.

Doctor Bartsch has continued in charge of the District of Columbia exhibit. Several additions were made, among them 55 birds specially mounted. In addition to one stereomograph that has been in use for some time, which is kept supplied with slides showing the bird life of the District, another has been loaned by the Wild Flower Preservation Society, in which slides of various local wild flowers are shown.

Thirty quarter-unit cases were received in the division of mammals during the year for the storing of skins, skulls, and skeletal material. During the past year, through additional assistance by W. M. Perrygo (half time during the months of July to November inclusive), good progress has been made on the osteological collection in the attic in the labeling and rearranging of certain groups. In order to conserve space, sets of leg bones of the larger ungulates are being removed from the regular storage cases, labeled, packed in wooden boxes, and stored in the mammal range, second floor. The entire available space in the attic is now occupied with cases, but notwithstanding this fact the entire collection stored there is in a crowded condition. Twenty quarter-unit cases have been added to the facilities for storing and spreading of the skin collection. The small skulls and skeletons of cetaceans have all been placed in cases and are now in very good arrangement. Most of the larger whale skulls and skeletons are now properly arranged. Forty large mammal skins were tanned on outside contract during the year. A few large skins and quite a number of small ones, including those used for exhibition purposes, were tanned by the taxidermists. During the year con-

siderable work has been done in the alcoholic collection, transferring specimens formerly stored in barrels to proper containers. The taxidermists prepared as study specimens about 57 flat skins and 257 made-up skins. Work on cleaning large and medium skulls and skeletons by the Museum force has resulted as follows: Skulls, 500; skeletons, 69; sets of leg bones, 50. Contract work on small and medium-sized skulls and skeletons has resulted in the cleaning of 769 skulls and 17 skeletons. This work is in a very satisfactory condition, being practically caught up with the cleaning of small skulls and skeletons.

In the division of birds, the study series of skins in the families Timaliidae and Pycnonotidae (bulbuls and related birds) was rearranged and expanded to occupy ten quarter-unit cases instead of the seven previously used. New case labels were prepared for these families. The contents of three cases of flycatchers (Muscicapidae) were transferred to a new position in consequence of the above change. Four cases of type specimens had become unduly crowded in places and two more cases were assigned to this series. A respacing of the contents was begun but not finished during the year. Four quarter-unit storage cases and 40 drawers were received during the year. One of these was for the use of the taxidermist shop, one for the skeleton series, and two for the study series of skins. Several hundred birds bearing only collectors' labels were supplied with the standard Museum labels. Considerable attention was given to the improvement of the collection of eggs. The North American series was expanded to include three additional cases, and 1,910 eggs (the accumulations of several years) were labeled and incorporated in their proper places. The foreign eggs were rearranged in part, covering 34 families (Struthionidae to Scolopacidae), and this work is still in progress. About 475 cleaned skeletons were numbered, labeled, card-indexed, and some of them were incorporated in the collection. Eighty new case labels were prepared for this part of the collection. The preparators made about 109 bird skins from fresh specimens, remade and improved about 100 skins, dismantled and made into skins two birds, and mounted a number of birds for the local exhibit. They prepared 24 eggs for specimens and cleaned most of the skeletons received during the year, numbering over 400 in all. Two hitherto overlooked types, a woodpecker (*Melanerpes formicivorus angustifrons* Baird) and a towhee (*Pipilo albigula* Baird) were identified in the collection and properly labeled, and a third, previously in doubt, was satisfactorily determined and similarly labeled.

In the division of reptiles, Miss Cochran has identified about 2,200 specimens, all of which have been given permanent places in the storage stacks. The card cataloguing of these specimens has been

done by Mrs. Clapp and is now about half completed. The laborer has been entirely over the collection, washing and refilling bottles. The cleaning of skeletons by the taxidermist has been going steadily on. A little progress has been made in cataloguing skeletal material; this task, however, is far from being completed as other work has caused its discontinuance from time to time.

In the division of fishes the storage rooms have been thoroughly inspected, containers refilled where necessary, the shelving and bottles cleaned, and many illegible labels have been restored. The cataloguing of material received is somewhat in arrears. The card index files are complete to the last entries in the register. Much of the material received during the year has been identified and installed in the storage rooms.

The present status of the collection of insects is the best in its history as much of the material has now been transferred to trays (with the exception of considerable portions of the Coleoptera and Hymenoptera). Alcoholic material illustrating early stages is well taken care of and the collections are in standard jars and vials. The Baker collection and the George M. Greene collection, received within the year, are for the most part still in the original boxes. Excellent progress has been made by L. L. Buchanan during the past year in the work of labeling and arranging the Casey collection. Mr. Buchanan estimates that the work is now about 70 per cent completed; but in this estimate he does not take into account a considerable quantity of unclassified material which the collection contains.

In the various sections work has progressed as follows: In the section of Hymenoptera Mr. Gahan has made progress on the identification and labeling of Ashmead, Howard, and Girault types, the labeling of trays and the breaking up of regional collections and incorporation of these in the general collection. Mr. Cushman has arranged the Phaeogenini and a large part of the Cryptinae according to the classification of Schmiedeknecht, and the North American Mesostenini by his own unpublished classification. Miss Sandhouse has arranged the nearctic *Xylocopa*, the Larridae, particularly those of the Philippine Islands, and the nearctic *Dasymutilla* according to the recent classification by Mickel. She has incorporated several collections, notably those of Crawford, Greene, and Chittenden and has sorted the parasitic Hymenoptera to superfamilies and turned them over to the specialists in those groups. In the section of Lepidoptera, Mr. Heinrich has transferred the Palearctic Olethreutidae to trays and entirely rearranged them according to the last European catalogue, and incorporated the material of the Hamfeldt, Dognin, and Fernald collections. The larval collection has been brought together in one room and rearranged. The card cata-

logue of the alcoholic collection has been completed and has been arranged both in systematic order and according to food plants. Doctor Schaus has expanded and arranged the neotropical Noto-dontidae and added 50 drawers. In the Amatidae, 50 drawers have been rearranged, Mrs. Locke reindexing all the species. The Old World Noctuidae have been arranged in 130 drawers. Doctor Schaus has also finished arranging the African Zygaeninae. The Old World Sphingidae have been entirely rearranged in 94 drawers owing to large accessions from Mr. Clark. All the figures so far published by Seitz in the Amatidae and Noctuidae have been placed in drawers from extra plates purchased by Doctor Schaus. This is a great aid in saving time for the incorporation of new species and others new to the collection. In all families—American and exotic—much work has been done in the indexing and placing labels for new species described both here and abroad.

Mr. Busck has transferred his collections of Microlepidoptera to the tray system as far as trays and drawers have been available and those transferred have been rearranged up to date with special attention to exotic species. Through gifts and exchange with Dr. A. Philpott, of the Cawthron Institute of New Zealand, a very complete collection of authentically determined New Zealand micros has been acquired and arranged; through the gifts and assistance of Mr. Edward Meyrick, of England, a nucleus of about 125 Philippine species has been authoritatively determined and a large number of other Eastern, African, and Australian species has been acquired, with special efforts to include genotypes and economically important species. In the section of Coleoptera, Doctor Böving has moved the entire collection (except the European) of coleopterous larvae to his office. The collections of Hopkins, Chittenden, and Dimmock have been relabeled and incorporated. The collection of slides has been considerably enlarged, particularly with slides referring to papers by Doctor Cotton and Doctor Böving's own recently published papers and unpublished studies. A very valuable addition to the collection consisted of determined larvae of 33 species from the Hawaiian Islands donated by O. H. Swezey. Mr. Fisher has rearranged part of the North American Cerambycidae, subfamily Cerambycinae. Certain genera in various other families were rearranged whenever this was necessary in making identifications. Mr. Barber has expanded certain minor groups that had become too congested. Doctor Chapin has transferred from Schmitt boxes enough specimens to fill 34 Museum drawers. In the Orthoptera, Mr. Caudell has continued his specific index to the Orthoptera of the world, has almost completed the arrangement of a synoptic tray collection of Orthoptera and has made some progress on a

rearrangement of the entire Orthopteroid collection, having completed the United States fauna through the nonsaltatorial forms. The rearrangement and coordination of the Coccid host file, estimated to include well over 40,000 cards, have been practically completed. Doctor Ewing added to the collection of scorpions from the Southwest some 80 or more specimens representing about a dozen species taken by himself.

During the year the Museum of Comparative Zoölogy of Harvard University returned to the National Museum a large shipment of myriapods which had been sent there some years ago at the request of Dr. R. V. Chamberlain. The entire myriapod collection was moved over to Dr. O. F. Cook's office in the Department of Agriculture.

The curator of marine invertebrates is highly gratified to report that the division for the first time in 15 years is about abreast with the "filling" constantly needed in the alcoholic stack, which includes ninety thousand-odd containers of alcoholic specimens.

Arrangement of the study collection of mollusks has been somewhat slow, owing to very limited assistance. C. E. Mirguet, preparator, has been pressed to keep abreast of the large mass of material which has been arriving steadily from Jamaica through the efforts of Mr. Orcutt. In addition to this, he has as usual met all the needs in the preparation of material for the collections and assistance to the scientific staff.

The collection of helminths has been cared for as heretofore; no change in arrangement has been attempted.

In the division of echinoderms the entire alcoholic collection was thoroughly gone over and all the containers refilled, replaced when necessary, and sealed. The collection as a whole is therefore in a better condition than for many years. This result was obtained by the employment of temporary help.

Reference has already been made to the relief from the extreme congestion in the main herbarium of the division of plants afforded by the erection of the new balcony whereby the capacity of the range allotted to the phanerogamic collections was nearly doubled. The construction work was nearly completed on January 1, since which time the efforts of the staff have been devoted almost wholly to spreading and reorganizing the phanerogamic herbarium, including the incorporation of nearly 200,000 additional specimens. At the present time, only one large family, the Compositae, awaits rearrangement. More than one-third of the old cases were removed to the balcony and about 50 new ones provided. Because of the great bulk of the material to be newly incorporated it was found necessary to write many thousands of new genus and species covers in providing an orderly arrangement of the specimens. The work now

nearly completed brings into a single sequence all the phanerogamic material in the herbarium (with the exception of the grasses) and marks an important advance in greatly increasing the general usefulness of the collection. During the year a total of 82,804 specimens have been stamped and recorded; these, with the accumulation of several years past (largely plants of the John Donnell Smith Herbarium) making up the 200,000 specimens recently incorporated. An unusually good record has been made in mounting during the year, a total of 44,778 plants having been turned out for recording and incorporation in the herbarium. Not more than 10,000 specimens now await mounting. The segregation of type specimens of phanerogams has been continued by Mr. Killip, 13,192 type specimens of species and varieties of American plants now having been distinctively labeled and specially catalogued with essential data. These make up the so-called type herbarium which is kept in special cases apart from the general herbarium. Attention must be called again to the serious existing need of additional curatorial help in caring for the large collections of cryptogams, especially the bryophytes and lichens. These collections are important and should be in charge of specialists or at least one aid whose duty should be to give them general curatorial attention.

Reference has already been made to the work of the taxidermists in so far as it relates to the exhibition series. The usual work of the shops has progressed satisfactorily. The regular work of cleaning skeletons, skulls, and other skeletal parts has also been attended to as usual. George Marshall, in addition to routine work and the mounting of birds for exhibition, made over 200 skins of mammals and birds; Mr. Scollick and Mr. East cleaned 371 complete bird skeletons and 12 incomplete, 20 bird skulls, 41 complete mammal skeletons, 457 skulls, and 50 sets of leg bones, 20 complete reptile skeletons, and 12 partial skeletons, and 49 skulls, besides other work. C. E. Mirguet, besides making several casts from fish and reptile specimens, prepared a large number of turtles and snake skulls. He also attended to a number of whale skulls and skeletons, besides cleaning a number of other large skeletons and skulls, altogether 43 mammal skulls, 28 mammal skeletons, 3 bird skeletons, and 117 reptile skeletons.

RESEARCH BY MEMBERS OF THE STAFF

Gerrit S. Miller, jr., curator of mammals, during the year finished a study of the collection of bones of extinct mammals made by him in Haiti three years ago. He has also investigated a peculiar condition of the gums in a species of Alaskan porpoise and has concluded several short technical studies. A. B. Howell, collaborator, has

prepared a report on all the Chinese mammals in the collection and has published descriptions of new forms found during the progress of this work. He has also concluded an account of the musculature of the narwhal which is now going through the press. H. H. Shamel, clerk-stenographer in the division of mammals has, in his own time, completed several short technical studies, including a synopsis of the American bats of the genus *Tadarida*.

Robert Ridgway, curator of birds, reports that work on the final parts of Bulletin 50 (Birds of North and Middle America) has progressed satisfactorily. He has finished the synonymies of the *Anseres* and is engaged at present on the synonymies of the herons. The work of the associate curator, Dr. C. W. Richmond, has included reading proof on one volume of Bent's Life Histories and the manuscript of another; reading proof for names of foreign birds in a 10-year index of the Auk. He also worked over various cases submitted by the committee on classification and nomenclature of North American birds of the American Ornithologists' Union, and attended to many inquiries from correspondents. In odd time he continued to work on old records connected with the collections. Dr. A. Wetmore continued work on the birds of Hispaniola begun with the late B. H. Swales. He also investigated fossil and semifossil material received from several sources. J. H. Riley, aid, finished a paper on the birds of the Mentawi Islands, and identified material from the islands of East Borneo. He also continued work on the birds of West China based on the collections of the Rev. D. C. Graham, with the object of preparing a report upon them.

In the division of reptiles, the studies of Chinese reptiles and amphibians by L. Stejneger, the curator, have gone forward although not much new material has been received lately. During several months in Europe in 1927 he was able to examine considerable type material and other valuable specimens in various European museums for the benefit of his studies of North American turtles. The study by Miss Doris M. Cochran, assistant curator, of Hispaniolan reptiles has progressed rapidly, as she has settled the status of a number of rather confusing species. She has described five new species and one new genus from Hispaniola and has identified a collection of over 200 specimens belonging to the Museum of Comparative Zoology. In addition she has completed the report on Dr. Hugh M. Smith's Siamese collection of reptiles and amphibians, totaling about 900 specimens received to date by the National Museum, to which Doctor Smith is now adding life history data. A paper containing descriptions of eight new species of Siamese reptiles and amphibians by Miss Cochran has been published.

The report on the Philippine fishes undertaken by H. W. Fowler, assisted by B. A. Bean, assistant curator in the division of fishes,

progressed satisfactorily, the second volume being in press and the manuscript of the third volume being submitted at the end of the fiscal year.

Except for the first two months of the fiscal year which were spent in the field, J. M. Aldrich, the curator of insects, has been occupied with the usual routine of identifying Diptera received and incorporating them in the collection; keeping up a catalogue of the literature of American Diptera, and making a special study of various groups in the muscoid flies. He has also received a shipment of about 30 types of American species of Diptera from the Vienna Museum of Natural History, representing for the most part species described from forty to one hundred years ago. On these he has prepared a paper for publication, redescribing them and making out some synonymy. He has also published some notes on the synonymy of other Diptera. C. T. Greene, assistant curator of Diptera, made investigations on the larvae and pupae of Agromyzidae and on certain tachinids. He also has in preparation a manuscript on dipterous larvae which will contain a table for the separation of all dipterous larvae known. Dr. A. G. Böving has undertaken investigations of the immature stages of a number of coleopterous larvae, the results of some having been published while others are in the press or still unfinished. W. S. Fisher, has continued his studies on the Cerambycid and Buprestid beetles whenever routine work permitted. Studies were made of the Buprestidae of the Malay Peninsula received from the Selangor Museum. Restudies of the Agriline tribe from the Philippines were started but discontinued until all of the late Professor Baker's material could be assembled.

The work on the revision of the North American beetles of the genus *Agrilus* was completed. Dr. E. A. Chapin has virtually completed a revision of the Coccinellid genus *Pantilea*, prepared tables of the North American species of a number of Staphylinid genera, and in the Cleridae has revised several of his manuscript keys to include additional species. Some advance has been made with the North American Clerinae and Hydnocerinae. H. S. Barber has intensively investigated local Lampyridae, and has completed a revision of the genus *Trichobaris* which contains the stalk weevils of tobacco and the solanaceous plants. The blind cave beetles of the genus *Anophthalmus* were examined, and a paper published on the group related to *A. pusio*. He also published a map of the type localities of the species described from Thomas Say's collecting a century ago, as well as his travels, so as to permit immediate reference in correcting misapplications of his specific names. A. Busck has continued monographic work on the family Tortricidae, in which

Miss Eleanor Armstrong has rendered important assistance and has made necessary drawings. C. Heinrich has made genitalia studies in the families Limacodidae, Megalopygidae, and Lacosmididae in part, in connection with revisionary work which Doctors Schaus and Dyar are doing for Seitz's Macrolepidoptera of the world. Dr. W. Schaus has conducted important researches in the Ceruidae (Notodontidae) of which he described 160 new species. A. N. Caudell, custodian of Orthoptera, has prepared and published reports on the orthopteroids taken by Professor Cockerell in Siberia and on those of Fiji and New Zealand collected by the University of Iowa expedition; also description of a new *Zootypus* from Jamaica. He has also made some progress on a revision of the Malayan Blattidae of the subfamily Epilampirinae.

Dr. H. G. Ewing has conducted investigations in the Scorpionidae, the Mallophaga, the Protura, and the Acarina. He completed a paper dealing with the scorpions of the western part of the United States, the first in many years dealing with this important group in our limits. W. L. McAtee and J. R. Malloch have continued work on Hemiptera in connection with a revision of the negro bugs. H. C. Barber has been employed for a temporary period by the Bureau of Entomology and is arranging the collections of the family Reduviidae. S. A. Rohwer, custodian of Hymenoptera, although unable to give much time to systematic work on the collection, has nevertheless completed a number of descriptions of sawflies and has arranged the oriental species of Trigonalidae, describing some new forms. While in London, A. B. Gahan, in cooperation with Dr. James Waterston, gave considerable attention to a study of *Harmolitas* (joint worms) of grain crops, and uncovered some interesting facts regarding the synonymy of American and European species. R. A. Cushman completed a revision of the North American Mesostinini. He also compiled the Ichneumonidae for the "List of Insects of New York." Miss Grace Sandhouse continued investigations in the group *Agapostemon* and *Angodilova* found north of Mexico. Dr. H. G. Dyar, honorary custodian of Lepidoptera, has devoted his time for the most part to the study of mosquitoes. Within the last year the Carnegie Institution has published a substantial volume by him, based on National Museum material and covering the classification, as far as known, of mosquitoes of the whole of America, both in the larval and adult stages. Doctor Dyar has also identified mosquitoes for many workers in the Public Health Service in various parts of America. He regularly identifies the mosquitoes received by the Museum and has within the last year or two taken over the identification of Diptera in the families of Simuliidae and Psychodidae.

In the division of marine invertebrates, Dr. Mary J. Rathbun, associate in zoology, devoted the major part of the year to further study of the crabs of the families Xanthidae, Cancridae, and Portunidae in preparation of the third volume of her comprehensive monograph of American crabs. In this connection she determined more than 3,500 crabs in addition to the review of most of the identified material in the study collections belonging to these three families. Furthermore, she has rendered the division invaluable assistance in classifying the crabs of many miscellaneous collections sent in for identification. As usual, she has given a great deal of time to editing the crustacea for Biological Abstracts, as well as preparing numerous abstracts of publications on crustacea. The curator, Dr. Waldo L. Schmitt, has spent a considerable part of the year disposing of accumulated examination and report material of which an unusual quantity was received. The preparation of the report on Siamese crustacea collected by Dr. Hugh M. Smith was continued as time permitted, and collections of crustacea of economic importance have been worked up for the United States Bureau of Fisheries in connection with newly developed and very productive Alaskan shrimp fisheries, and for the Biological Board of Canada in connection with studies on the feeding of the haddock. The assistant curator, Clarence R. Shoemaker, aside from numerous routine duties and identifications, has found time to complete his report on the Amphipods collected during the fisheries research project of the Biological Board of Canada in the Gulf of St. Lawrence during 1917. The identification of the extensive series of Amphipods collected in the Bay of Fundy by A. H. Leim, of the Atlantic Biological Station, St. Andrews, New Brunswick, is nearing completion and a beginning has been made on determinations of Amphipods from haddock stomachs received from the Biological Board of Canada.

J. O. Maloney, aid, completed the manuscript and drawings of "A new species of cavernicolus Isopod from California." For the Federal Horticultural Board, Mr. Maloney has made numerous identifications of Isopods taken from plant importations. Studies initiated last year on Lower California Isopods have been continued in spare time. Mr. Maloney has also determined the Isopods taken from the stomach contents of haddock for the Biological Board of Canada. H. K. Harring, Custodian of Rotatoria, has industriously continued his rotifer studies. In collaboration with Dr. Frank J. Myers he published part 4 of the Wisconsin Rotifer Fauna, the Dicranophorinae, and began work on part 5, the Genus *Euchalnis*, which will probably take two years to complete. During the past year Mr. Harring has also identified a number of small collections from many sources, and several large collections for the University

of Toronto, the Puget Sound Biological Station, and the University of Michigan. Dr. J. A. Cushman, honorary collaborator in Foraminifera, continued to work up the Museum collections containing these forms. Part 6 of Bulletin 104 on the Atlantic Foraminifera is complete, except for a brief review of the recent revision of the classification of Foraminifera. Work on part 7 is well under way. Dr. Max Ellis and Prof. Maynard M. Metcalf, collaborators, have continued their studies on discodrilid worms and the opalinid parasites of frogs, respectively. Dr. Harriet Richardson Searle, collaborator, has renewed her interest in the isopod collections, recently continuing examination of the Smithsonian Panama collections and some material from Barro Colorado Island, Gatun Lake. As in past years, Dr. R. S. Bassler, curator of the division of paleontology, furnished routine identifications of bryozoa and continued his review in collaboration with Ferdinand Canu of the study series of these forms. Under their joint authorship the Museum published in the Proceedings for the current year "Fossil and recent Bryozoa of the Gulf of Mexico region."

In the study collection of the division of mollusks the curator, Dr. Paul Bartsch, has revised the West American species of the family Turritidae, recognizing a number of super-specific groups and many new species. Studies of the West Indian land shells of the family Annulariidae have been continued and a manuscript on that family is practically complete. The report is being held up pending the Cuban survey to be made this summer as study of Doctor de la Torre's collection last summer yielded almost 200 new forms in this family. Besides several lesser papers the curator has written a report on a collection of shells from Vladivostok, containing 13 new species, which is being published in Russia. The time of William B. Marshall, assistant curator, has been occupied mostly in curatorial work on the collections and in identification of specimens submitted by correspondents. What time could be spared from such work was devoted to investigation and resulted in the completion of a paper describing new fresh water and marine bivalve shells from Brazil and Uruguay. He is at present making a study of several groups of South American pearly mussels of the genera *Anodontiles* and *Diplodon* with a view to a classification more in keeping with discoveries of recent years.

The research work undertaken by the curator of Echinoderms, Austin H. Clark, during the year consisted mainly in a continuation of work on volume 2 of the monograph of the recent crinoids for United States National Museum Bulletin 82. Of this volume part 3 is, except for the photographic illustrations, completed, part 1 is very nearly completed, and part 2 is about three-quarters done.

Work on the crinoids collected by the Australian Antarctic expedition, 1910-1914, under the leadership of Sir Douglas Mawson, was continued. A report was prepared on the comatulids which have been received at the British Museum since the curator's last visit to that institution in 1910. This report, containing notices of 55 species, including descriptions of 9 new forms, is now in course of publication in the Journal of the Linnean Society of London. Just before the end of the year work was begun on the extraordinarily large collection of comatulids made by Dr. Th. Mortensen at the Kei Islands and elsewhere in the Indo-Pacific region.

In the division of plants, the curator, Dr. Frederick V. Coville, has continued studies upon the breeding and culture of blueberries (*Vaccinium*) and other acid-soil plants. Dr. J. N. Rose, late associate curator, continued studies, in collaboration with Dr. N. L. Britton, on the families Caesalpiniaceae and Mimosaceae. At the time of the death of Doctor Rose in May, the first of the four projected parts of the North American Flora covering these groups had been published and manuscript for the second part was well advanced. Dr. W. R. Maxon, associate curator, has continued studies of tropical American ferns, giving special attention to the revision of several groups as represented in Jamaica and Hispaniola. Paul C. Standley, associate curator, has published several papers describing many new species from Mexico and Central America, in addition to the flora of the Panama Canal Zone, which was published as volume 27, Contributions from the United States National Herbarium, in January last. A projected manuscript enumerating the plants of the Yucatan Peninsula has been practically completed with the cooperation of the Field Museum of Natural History. E. P. Killip, associate curator, has continued his studies of the flora of Colombia and other Andean regions of South America, and has published several papers in this connection. Mr. E. C. Leonard, assistant curator, has continued work on the flora of Hispaniola, giving special attention to the identification of several collections from the Republic of Haiti.

RESEARCH OF OUTSIDE INVESTIGATORS AIDED BY MUSEUM MATERIAL

The mammal collection has been consulted at different times during the year by Drs. Adolph H. Schultz, Ernst Huber, and George P. Wislocki, of Johns Hopkins Medical School. Dr. O. P. Hay, Carnegie Institution of Washington, has made constant use of the osteological collection in connection with his work on fossil mammals. William H. Sherzer, Michigan State Normal College, spent a few days in the mammal division examining the collection of gorilla

skulls. Dr. J. A. Wainwright, Scranton, Pa., examined certain mammals in the collection in connection with a study of mammary glands. Members of the staff of the Biological Survey consulted the collections constantly throughout the year. The more important loans of specimens made to outside investigators in aid of researches were as follows: To the Johns Hopkins Medical School for study by Doctor Schultz, 20 monkeys and galagos in alcohol; for Doctor Huber, one seal skull, and for Doctor Wislocki, 6 uteri, 1 tamandua, and 1 cyclopes; to the American Museum of Natural History, 9 South American mammals for comparison with type specimens, and 3 skeletons for R. T. Hatt to aid in a study of axial musculature; to Colorado College, Colorado Springs, 39 bat skulls for Clay B. Freudenberger who is making a study of auditory ossicles; to the Museum of Vertebrate Zoology, Berkeley, Calif., 7 skulls; to the Museum of Comparative Zoology, Cambridge, Mass., 9 skins with skulls for study by G. M. Allen; to Moses Taylor Hospital, Scranton, Pa., 1 duckbill in alcohol for Doctor Wainwright; to the Wistar Institute, Philadelphia, Pa., 64 domestic cat skulls; to the Charleston Museum, Charleston, S. C., 4 bat skins and skulls; to the Western Reserve University School of Medicine, 1 hyena skull for T. W. Todd; to Arthur Svihla, Ann Arbor, Mich., 22 alcoholic specimens of small rodents; to Dr. W. L. Straus, jr., Baltimore, Md., 6 squirrel skeletons for use in study of the mammalian pelvis.

In the division of birds, outside investigators made more than the ordinary use of the collections during the year, due in measure to the meeting in the Museum of the American Ornithologists' Union in November, 1927. Among those who utilized the facilities of the division at that time and at various periods of the year may be mentioned Messrs. Donald R. Dickey and A. J. Van Rossem, Pasadena, Calif., who compared Central American birds with especial reference to the birds of Salvador; Gregory M. Mathews, London, England, who examined birds from the East Indies and neighboring regions, in connection with the preparation of part 2 of his *Systema Avium Australasianarum*; Mrs. Margaret M. Nice, Columbus, Ohio, who examined records and material relating to Oklahoma birds; George Finlay Simmons, Cleveland Museum of Natural History, who studied various African birds to facilitate his identification of material collected on the voyage of the *Blossom* to the South Atlantic; Miles D. Pirnie, Ithaca, N. Y., who spent several days examining plumages of North American ducks; W. E. Clyde Todd, Carnegie Museum, Pittsburgh, who spent a week or more working on literature and records relating to birds of the Hudson Bay region; Dr. C. E. Hellmayr, Field Museum, Chicago, who studied various tropical American birds, especially the family Cotingidae, and also birds

of northern Turkestan; Dr. Herbert Friedmann, Amherst, Mass., who spent a week or more studying African eagles and other large birds, especially of the Frick collection, in connection with a report on the birds of that series; Dr. Nagamichi Kuroda, Tokyo, Japan, who examined various species of ducks, geese, and extinct species, as well as certain types of Japanese birds preserved here; T. H. Shaw, Nanking, China, who studied various Chinese birds; W. W. Bowen, late of the Sudan Government Museum, who spent some time examining birds and literature in the preparation of keys for part 2 of his Catalog of Sudan Birds; Josselyn Van Tyne, Ann Arbor, Mich., who examined Panama birds and various other species.

Others included Dr. R. M. Anderson, National Museum of Canada, Ottawa, who looked up grouse of the genus *Pedioecetes*; P. A. Taverner, of the same institution, who examined ptarmigans; Francis Harper, of the Boston Society of Natural History, examined certain European birds; Dr. Stuart T. Danforth, Mayaguez, P. R., examined various species from the island of Haiti; F. H. Kennard, Newton Center, Mass., examined geese of the genus *Chen*; James L. Peters, of the Museum of Comparative Zoölogy, Cambridge, Mass., examined various West Indian birds; Drs. Frank M. Chapman, James P. Chapin, Jonathan Dwight, R. C. Murphy, and Messrs. W. de W. Miller and Philip A. du Mont, all of the American Museum of Natural History, New York, studied or compared material from various parts of the world; Dr. Witmer Stone, Academy of Natural Sciences, Philadelphia, examined South American tanagers; Charles H. Rogers, Princeton University, examined various species; Dr. Edwyn Reed, Valparaiso, Chile, looked over certain South American birds; Messrs. Roland Walker, Oberlin, and Milton B. Trautman, Columbus, Ohio, examined various Ohio species. Among those who examined the collection of eggs may be mentioned A. C. Bent, Taunton, Mass., who studied those of North American waders in connection with his Life History series; Herbert W. Brandt, Cleveland, Ohio; Edward J. Court, Washington, D. C.; C. W. Crandall, Woodside, Long Island; and Frank C. Willard, Long Island City, who inspected various North American eggs. Members of the Biological Survey staff who made use of the collections and library included A. H. Howell (on Florida and Georgia birds and records); Remington Kellogg (identifying feathers and bones in connection with analyses of stomach contents); Dr. H. C. Oberholser; E. A. Preble and others on various comparisons. Outside investigators who rendered service to the Museum in identifying material include Dr. Herbert Friedmann, who determined African specimens, and Dr. C. E. Hellmayr and W. E. C. Todd, who corrected the determinations of tropical American material.

A total of 1,113 specimens of birds was loaned during the year as follows: Charles D. Bunker, Kansas University Museum, Lawrence Kans., 2 skeletons of osprey (*Pandion*) for use of L. V. Compton; California Academy of Sciences, San Francisco, 11 skins including two types for the use of Harry S. Swarth in determining material in that institution; Carnegie Museum, Pittsburgh, Pa., 44 skins of ant-wrens, tanagers, crows, and jays for the use of W. E. Clyde Todd in researches at that museum; American Museum of Natural History, New York, 18 petrels for the use of Dr. R. C. Murphy in his studies of this group; Cleveland Museum of Natural History, Cleveland, Ohio, 1 skin of a warbler (*Sylvia*) for the use of G. F. Simmons in his determination of African birds in that museum; Field Museum of Natural History, Chicago, 144 bird skins for the use of C. E. Hellmayr in his studies of neotropical and Asiatic birds in the Field Museum; Museum of Comparative Zoölogy, Cambridge, Mass., 81 skins for the use of Outram Bangs in comparison with Mexican and Chinese material in that museum; to the same institution, 601 bird skins for the use of Dr. Herbert Friedmann in preparing a report on the Frick Abyssinian collection; Museum of Vertebrate Zoology, Berkeley, Calif., 12 skins for the use of Dr. Joseph Grinnell in his studies of Lower California birds; National Museum of Canada, Ottawa, 8 skins of *Lagopus*, for the use of P. A. Taverner in determining specimens of this group; Natural History Museum, San Diego, Calif., 17 skins of *Passerculus* for the use of L. M. Huey in determining material in that museum; H. B. Conover, Chicago, Ill., 10 skins of species of *Francolinus* and *Turnix* to aid him in his studies of African forms of these genera; Donald R. Dickey, Pasadena, Calif., 44 skins for use in comparisons on Salvadorean birds; Herbert C. Robinson, British Museum (Natural History), London, England, 32 skins of flycatchers and certain other groups, for use in studies of Malayan and Bornean birds; George M. Sutton, Harrisburg, Pa., 88 skins of purple grackles (*Quiscalus*) from Pennsylvania and Maryland for examination.

In the division of reptiles, Dr. E. R. Dunn, S. B. Bishop, Dr. Tracy I. Storer, and Dr. A. H. Wright spent some time studying the collections. Remington Kellogg, of the Biological Survey, has been occupied for part of each day in the division on a report on the Nelson and Goldman Mexican collections. Specimens for study to the number of 2,032 have been loaned as follows: C. S. Bishop, New York State Museum, Albany, N. Y., 1 salamander; American Museum of Natural History, New York, 4 salamanders and 4 lizards for Clifford Pope, and 16 salamanders for Dr. G. K. Noble; British Museum (Natural History) London, 11 specimens for H. W. Parker; Dr. A. do Amaral, Mulford Biological Laboratories, Glenolden, Pa., 281

snakes; Dr. Robert Mertens, Senckenberg Museum, Frankford a/M., Germany, 3 lizards; Dr. E. R. Dunn, Smith College, Northampton, Mass., 47 amphibians; Museum of Zoology, Ann Arbor, Mich., 677 lizards for C. E. Burt and 229 snakes for Miss O. G. Stull; Dr. A. H. Wright, Cornell University, Ithaca, N. Y., 235 frogs; and Field Museum of Natural History, Chicago, 526 reptiles and amphibians from Panama for K. P. Schmidt, to be reported upon.

In the division of fishes, Alfred Eide Parr, Norwegian Fisheries Bureau, Bergen, Norway, examined specimens of malacopterygian fishes in connection with a study of deep-sea forms; Carl L. Hubbs, Museum of Zoology, University of Michigan, Ann Arbor, examined the families Embiotocidae, Percidae, and Gasterosteidae; Dr. W. H. Longley, Goucher College, Baltimore, examined the Gobioids and Blennioids in comparison with his material from the East Indies and Florida; T. H. Shaw, Tsin Hua College, Peking, China, examined Chinese fishes to familiarize himself with the fauna of his native land; Henry W. Fowler, Academy of Natural Sciences, Philadelphia, spent considerable time studying material in connection with further work on Philippine fishes; Milton B. Trautman, Ohio State University, examined certain fishes of the Ohio fauna. A number of specimens have been sent out for study purposes as follows: H. W. Fowler, Academy of Natural Sciences, Philadelphia, 37 Serranoid fishes in connection with his report on the Philippine *Albatross* collections; Carlsberg Laboratories, Copenhagen, Denmark, 4 specimens of deep-sea fishes for examination; University of Michigan, 79 specimens of *Notropis hudsonius* for study by Carl L. Hubbs.

The division of insects was visited by Dr. David G. Hall, of Fayetteville, Ark., who spent some time studying the collection of the genus *Sarcophaga* and has undertaken to revise the tropical American material in this group. Prof. A. L. Melander, of the College of the City of New York, spent a few days examining material in the dipterous family Empididae; M. C. Van Duzee, of Buffalo, N. Y., who has described a large part of the Diptera in the family Dolichopodidae in the Museum collection, visited the division for the purpose of examining new material in the same family. Within the last year he has completed a large paper on this family, describing material collected by C. T. Greene in Panama and by J. M. Aldrich in Guatemala; H. C. Hallock, of the staff of the Bureau of Entomology, stationed at Westbury, N. Y., visited the Museum for the purpose of studying a collection of Diptera belonging to the parasitic genus *Cryptomeigenia*, having undertaken a revision of this genus based principally upon Museum material; Dr. T. Shiraki, of the Agricultural Experiment Station at Formosa, spent several days examining the types of Japanese and other oriental insects; C. H.

Curran, in charge of Diptera in the American Museum of Natural History, New York City, and formerly of the entomological branch at Ottawa, Canada, spent a week in January examining various types of muscoid flies; Dr. William A. Hoffman, instructor in the School of Tropical Medicine, Porto Rico, visited the Museum in January for the purpose of examining some types of the smaller blood-sucking flies; George M. Green, of Harrisburg, Pa., visited the division for the purpose of consulting literature and examining specimens of Coleoptera; J. C. Crawford, Black Mountain, N. C., spent two weeks in the study of Hymenoptera; J. H. Walter, of the Federal Horticultural Board, worked on Thysanoptera in the evenings for a part of the year; R. J. Sims, of the Japanese-beetle laboratory, spent a week working on beetles of the genus *Phyllophaga*; S. E. Crumb, Clarksville, Tenn., spent a month in the study of lepidopterous larvae; Dr. D. M. DeLong, of the Ohio State University, spent three days in the study of Homoptera; M. T. Simulyan, of the gipsy-moth laboratory, worked for a month in the collection of Hymenoptera.

Prof. Teiso Esaki, of the Entomological Laboratory, Kyushua Imperial University, Fukuoka, Japan, spent a week in the study of Hemiptera; Mr. Bernard Trouvelot, of Versailles, France, spent some time in the study of parasites of the potato beetle; E. Rivnay, American Museum of Natural History, New York City, spent a few days in the study of beetles of the family Rhipiphoridae; Theodore H. Hubbell, of the University of Michigan, spent two days in the study of Orthoptera; H. A. Jaynes and Dr. H. W. Allen, of the Japanese beetle laboratory, spent a day in the study of *Tiphia*; L. E. Dills, of the University of West Virginia, spent a few days in the study of Hymenoptera; Miss Kathleen Doering, of the University of Kansas, examined types of Cercopidae and other Hemiptera in the collections; Dr. E. D. Bell, of Sanford, made two visits to study Homoptera; Dr. Herbert Osborn, of the Ohio State University, made comparison with types of Homoptera; Dr. Carl J. Drake, of Iowa State College, compared specimens in the Hemiptera collection; Dr. F. J. Psota spent several days studying material of the beetle genus *Moneilema*; Dr. W. T. M. Forbes, of Cornell University, spent three weeks identifying material with the aid of the Lepidoptera collections in the Museum; Mr. R. C. Williams, jr., and Ernest Bell worked with Doctor Schaus on the collection of Hesperidae; I. Moline, of the Bureau of Entomology staff at Ancon, Canal Zone, spent several days at the Museum in the study of fruit flies of the genus *Anastrepha*. During the year many entomologists called at the division, some for information with reference to the library and collection, others to see the method of installation. Names of some of these are: Prof. Robert J. Matheson, Cornell University; Alejan-

dro de Mesa, Philippine Islands; Kenneth M. King, Saskatoon Laboratory; Dr. George Salt, Bussey Institution, who was especially interested in Hymenoptera; Prof. James S. Hine, of the Ohio State University, interested chiefly in Diptera; Dr. Ashmed Salem Hassan, from Egypt; W. H. Thorpe, Zoological Laboratory, Cambridge, England; Prof. R. A. Cooley, Boseman, Mont.; R. C. Williams, of the Academy of Natural Sciences, Philadelphia; C. P. Englehart, of the Brooklyn Museum; Demetrio D. de Torres y de Quirós, Madrid, Spain; Stanley Garthside, Sydney, Australia; and Dr. A. Dampf, chief entomologist, Mexico City.

Entomological material for study purposes to the extent of 4,400 specimens was loaned to a large number of institutions and investigators. Among those to whom large consignments were sent may be mentioned: The Academy of Natural Sciences, Philadelphia, 158 Orthoptera for Morgan Hebard; J. C. Blattny, Prague, Czechoslovakia, 256 beetles; J. H. Frison, Urbana, Ill., 386 bees; David G. Hall, Fayetteville, Ark., 459 flies; M. Hatch, Seattle, Wash., 113 beetles; H. C. Hallock, Westbury, N. Y., 346 flies; R. Jeannel, Paris, France, 460 beetles; T. B. Mitchell, 270 bees; George Salt, Boston, Mass., 370 Hymenoptera; M. C. Van Duzee, Buffalo, N. Y., 436 flies.

The division of marine invertebrates is under great obligation for the most generous cooperation from a number of specialists in the determination of material. Special acknowledgment is made to the following for help in the groups indicated: Dr. Henry B. Bigelow, Medusae, Ctenophera; Dr. H. Boschma, Rhizocephalids (Crustacea); Dr. Joseph A. Cushman, Foraminifera; M. W. de Laubenfels, Porifera; Prof. G. S. Dodds, Freshwater Entomostraca; Prof. Max Ellis, Discodrilids; Dr. Walter K. Fisher, Sipunculids; Prof. Gordon E. Gates, Earthworms; Dr. W. P. Hay, Crustacea; Dr. A. G. Huntsman, Ascidians; Dr. Chancey Juday, Cladocera (Crustacea); T. Kaburaki, Turbellaria; Dr. C. Dwight Marsh, Freshwater Copepods; Dr. Maynard M. Metcalf, *Salpa*, *Pyrosoma*, Protozoa; Dr. J. Percy Moore, Leeches; Dr. Yo Okada, Phyllopora; Dr. Raymond C. Osburn, Bryozoa; Dr. A. S. Pearse, *Limnadia*; Dr. Henry A. Pilsbry, Barnacles; Capt. F. A. Potts, Rhizocephalids (Crustacea); Prof. Frank Smith, Earthworms and Freshwater Sponges; Miss Caroline B. Stringer, Turbellaria; Dr. W. M. Tattersall, Mysidacea (Crustacea); Dr. A. L. Treadwell, Annelids; Dr. C. B. Wilson, parasitic and free-swimming Marine Copepods; and Dr. H. V. Wilson, Porifera.

Fifty-five separate shipments of specimens were made to these specialists during the year, comprising nearly 600 lots of material, containing an aggregate of considerably more than 1,800 specimens. It is interesting to note that Doctor Treadwell has discovered at

least one new species in the various sendings of annelids; Dr. C. B. Wilson five new species of copepods and Doctor Pilsbry some new records in the distribution of west coast barnacles. Luang Choola of the Siamese Fisheries Department, under the direction of Dr. Hugh M. Smith, spent several months in the division studying Indo-Pacific crustacea. Miss Rowena Radcliffe has availed herself of the facilities of the laboratory at various intervals in connection with studies on fresh water and marine plankton organisms in general, and the fauna of the United States Bureau of Fisheries fish-culture ponds at Lakeland, Md., in particular. Among the visitors and specialists who have availed themselves of collections are the following: Dr. Florencio Talavera, Bureau of Science, Manila, P. I., Crustacea; M. W. de Laubenfels, Carnegie Institution of Washington, sponges; H. R. Seiwel, biologist and chemist on board the yacht *Carnegie*, Crustacea; Melbourne Ward, Darlinghurst, Sydney, Australia, Crustacea; Dr. A. S. Pearse, Duke University, Chapel Hill, N. C., Crustacea; Prof. Gordon E. Gates, Judson College, Rangoon, Burma, earthworms; Clarence Birdseye, General Sea Foods Corporation, Gloucester, Mass., shrimp fisheries; Edwin P. Greaser, University of Michigan, Crustacea; Dr. Joseph A. Cushman, Sharon, Mass., Foraminifera; W. H. Bradley, United States Geological Survey, Fossil Arthropods; Dr. C. Dwight Marsh, Bureau of Plant Industry, Department of Agriculture, Crustacea, copepods; Prof. Sidney I. Kornhauser, University of Louisville, Ky., biology; Capt. J. P. Ault, yacht *Carnegie*, oceanography; Mr. John Fleming, department of terrestrial magnetism, Carnegie Institution, oceanography; Dr. H. B. Bigelow, Museum of Comparative Zoölogy, oceanography; Miss Esther Carpenter, Bryn Mawr College, earthworms; Miss Isabella Gordon, Cambridge, England, coelenterates; Dr. Charles J. Fish, Buffalo Museum of Natural History, plankton; Charles A. Pertsch, Maryland Academy of Science, biology; H. C. McMillin, United States Bureau of Fisheries, crustacea; George T. Ash, Washington, D. C., sponges; James N. Jacobs, Minneapolis, Minn., sponges; Dr. Clinton G. Abbott, San Diego Museum of Natural History, invertebrate collections.

In the division of mollusks Miss Rowena Radcliffe spent considerable time working upon a report of the mollusks obtained by the United States Bureau of Fisheries in its exploration of Chesapeake Bay; Miss Pearl Hicks was occupied for several months in an anatomic and histologic study of *Cerion paracuta*; Luang Choola, of Siam, spent some weeks studying the collections made by Dr. Hugh M. Smith in Siam; Mrs. Paul Bowman has given considerable time to the collections made by her at Matamek River, Canada. The recent collections of mollusks have been consulted by Drs. Wendell C. Mansfield, C. W. Cooke, and Julia Gardner, members of the

Geological Survey staff who have had constant use of these specimens for comparative purposes. The following have spent some time in the division, examining and studying material: William J. Foster, Washington, D. C.; C. A. Perry, Bridgton, Me.; Edwin Burr, Washington, D. C.; H. J. Boekelman, Deland, Fla.; C. D. Alleman, Canal Zone; Prof. Harry Ladd, University of Virginia, Charlottesville; Dr. Louis M. Perry, Asheville, N. C.; Dr. I. F. Moll, Berlin, Germany; Dr. Rollin E. Stevens, Detroit, Mich.; Dr. William A. Hoffman, San Juan, Porto Rico; Dr. Carl Engberg, Lincoln, Nebr.; John Douglass and R. E. L. Collins, students from Johns Hopkins University. Specimens of mollusks were loaned for study as follows: To the Hon. F. R. Latchford, Ontario, Canada, 17 specimens; J. Allen Thomson, Wellington, New Zealand, 2 specimens; Lieut. Col. W. H. Turton, Clifton, Bristol, England, 31 specimens; Edwin Ashby, Blackwood, South Australia, 15 specimens; Zoological Institute, Tokyo, Japan, 3 specimens; Dr. S. S. Berry, Redlands, Calif., 2 specimens; José Giner Mari, Valencia, Spain, 63 specimens. Two lots of *Physa* were sent to William J. Clench, Cambridge, Mass., for determination; and 7 vials of mollusks to Prof. Kyosuke Hirasaka, Imperial University, Tokyo, Japan, for determination. In the section of helminths, a slide of the parasite *Porocephalus gracilis* was loaned to Duke University, Durham, N. C., for Fred J. Holl.

During the year the following studies have been aided by material belonging to the division of echinoderms: Prof. Walter K. Fisher, of Stanford University, Calif., director of the Hopkins Marine Laboratory, has continued work on the starfish collection, studying especially the species inhabiting the North Pacific area; Dr. Th. Mortensen, of the Zoological Museum, Copenhagen, Denmark, has continued work on the sea urchins collected by the *Albatross* among the Philippines and in adjacent waters, and in addition has made an intensive study of our specimens representing the family Cidaridae; Dr. Hubert Lyman Clark, of the Museum of Comparative Zoölogy, Cambridge, Mass., continued work on the holothurians of the *Albatross* Philippine expedition; Prof. Ludwig Döderlein, of Munich, Bavaria, completed studies on the basket-stars of the *Albatross* Philippine expedition; Miss Elizabeth Deichmann completed studies on the unidentified holothurians of the family Paolidae. Three starfishes were sent to Prof. W. K. Fisher, and 24 or more sea urchins to Dr. Th. Mortensen.

As in previous years in the division of plants, substantial help has been given many outside students by the loan of specimens from the National Herbarium. Locally, 33 lots of material, aggregating 469 specimens, have been lent to investigators in the United States De-

partment of Agriculture, chiefly the Bureau of Plant Industry. The revision of a large number of specimens of Compositae and the identification of much new material in this family have been carried out at the herbarium by Dr. S. F. Blake, of the bureau staff. Out-of-town botanists who have conducted investigations at the herbarium, and the special subjects of their study, are as follows: Prof. L. H. Bailey, Ithaca, N. Y., flora of eastern South America; Prof. H. H. Barlett, University of Michigan, the genus *Dianella*; Dr. M. A. Howe, New York Botanical Garden, algae; Prof. H. M. Hall, University of California, Compositae of the western United States; Prof. Duncan S. Johnson and Dr. Alexander F. Skutch, Johns Hopkins University, vegetation of Jamaica; Dr. E. D. Merrill, University of California, plants of eastern Asia; Dr. Alfred Rehder, Arnold Arboretum, shrubs of North America; Robert E. Woodson, jr., Gray Herbarium, tropical American Apocynaceae; Miss Alma G. Stokey, Mount Holyoke College, Pteridophyta; Dr. William Trelease, University of Illinois, Piperaceae of tropical North America; C. A. Weatherby, Gray Herbarium, Pteridophyta; Prof. Paul Weatherwax, Indiana University, morphology of grasses. The material loaned for study to institutions or to individuals outside of Washington during the past year consisted of 97 lots, aggregating 6,412 specimens. The more important items are as follows: Prof. Paul Aellen, Basel, Switzerland, 1,338 specimens of *Chenopodium*; Edwin B. Bartram, Bushkill, Pa., 245 mosses; Botanical Museum, Berlin-Dahlem, Germany, 438 specimens; University of California, 244 specimens; Botanical Museum of the University, Copenhagen, Denmark, 653 ferns; De Pauw University, Greencastle, Ind., 346 specimens of *Cuscuta*; Botanical Institute, University of Göttingen, Germany, 155 specimens of Connaraceae; Gray Herbarium of Harvard University, 712 specimens; University of Illinois, 275 specimens; Missouri Botanical Garden, St. Louis, 150 specimens; New York Botanical Garden, 711 specimens; Pomona College, Claremont, Calif., 452 specimens; and the Museum of Natural History, Vienna, Austria, 209 specimens of Lobeliaceae.

Assistance by members of staff to other Government bureaus and private individuals.—It has been stressed in previous reports that assistance rendered the general public, as well as various branches of the Government, by the scientists of the Museum constitutes an important service which requires considerable labor and time. The present year is no exception, as will be seen from the following brief summary.

Detailed reports were made by the curator of the division of mammals on a total of 21 lots comprising about 236 specimens. Besides attending to the usual miscellaneous inquiries he gave consid-

erable assistance to Dr. C. W. Stiles, Hygienic Laboratory, United States Public Health Service, in his bibliographic work on the Primates. The sectional library of the division of birds is consulted almost daily by officials of the Biological Survey, and necessary assistance and cooperation in bibliographic research rendered. The National Geographic Society was helped in connection with questions on the birds of the Faroe Islands; identifications of birds were furnished the National Zoological Park; considerable time was given to looking up data and specimens for Dr. Joseph Grinnell, of the University of California, who is preparing a report on the birds of Lower California. Doctor Wetmore determined quantities of bones of birds uncovered in archeological excavations at Pecos, N. Mex., for Dr. A. V. Kidder, Phillips Academy, Andover, Mass., and for N. M. Judd from investigations at Pueblo Bonito, N. Mex., under the auspices of the National Geographic Society. Instructions in making up bird skins were given native collectors of Dr. Joseph F. Rock, who was about to start for China for the National Geographic Society. Eleven lots of birds, numbering 418 species, were received for identification and return.

In the reptile division a number of identifications were furnished to the Federal Horticultural Board, the specimens being accessioned in every instance. Sixteen lots of fishes were received for determination and report, the most important ones being for the Florida State Museum. Assistance was rendered to Dr. David Starr Jordan in his general work on fishes; to Dr. Hugh M. Smith in his work on the fishes of Siam; and to Dr. Carl L. Hubbs in his work on the Embiotocidae of the west coast. Dr. J. M. Aldrich, curator of insects, did considerable identifying in Diptera during the past year for the Bureau of Entomology and the Federal Horticultural Board, and was consulted by the Bureau of Animal Industry. Identifications by Doctor Aldrich and Mr. Greene amounted to 1,044 in the year, many of them involving a great deal of work. Doctor Aldrich also identified material at different times for several of the experiment stations throughout the country, principally for those in California, Oregon, and Utah; for the Hawaiian Sugar Planters' Association; the Illinois State Laboratory of Natural History; the Entomological Branch, Ottawa, Canada; the California Horticultural Commission; Dr. Gerald F. Hill, Australia; Cornell University; South Dakota Experiment Station; University of Porto Rico; Dr. H. Schmidt, San Jose, Costa Rica; the Citrus Experiment Station, California; the School of Tropical Medicine, Johns Hopkins University; the Maine Experiment Station; the experiment station in the Dominican Republic; the Massachusetts Agricultural College; Dr. A. Dampf, chief entomologist, Mexico; the Standard Fruit Co.,

La Ceiba, Honduras; the London School of Tropical Medicine, Argentina; the Agricultural and Mechanical College, Stillwater, Okla.; and the Vienna Natural History Museum, Austria. The number of lots for examination during the year amounted to 192.

In the division of marine invertebrates, 201 lots, comprising slightly less than 3,000 specimens, were determined, with more than 1,000 specimens left over from transactions of the previous year. Aside from this work, considerable information was furnished to several government bureaus, as the Federal Horticultural Board, the Bureau of Fisheries, the Biological Survey, the Geological Survey, and the Bureau of Entomology. Identifications of more than 900 specimens were furnished foreign museums and government agencies as follows: Museu Paulista, Sao Paulo, Brazil; Provincial Museum, Victoria, British Columbia; Biological Board of Canada; Pacific Biological Station; Geological Survey of Canada; and the Secretaria de Agricultura y Fomento, Mexico. Similar services were rendered to a score of investigators, mostly in this country. These transactions are increasing all the time, those of this year being nearly double those of last in number and extent.

In the division of mollusks, specimens of snails and slugs were identified for the Federal Horticultural Board, of importance in determining whether these animals, incidentally imported with plants, are injurious to agriculture in this country; 23 lots, comprising 96 specimens, were thus identified during the year. Altogether the division received 107 different sendings of material, comprising 1,860 individual lots, for identification. The assistance rendered by the curator of Echinoderms to outside organizations and individuals, beyond the usual correspondence, consisted in serving as new manager for the American Association for the Advancement of Science at the Nashville, Tenn., meeting; serving as secretary of the section of oceanography, American Geographical Union, National Research Council; and serving as a member of the advisory committee on source bed studies of the American Petroleum Institute and the American Association of Petroleum Geologists acting in cooperation with the National Research Council. Sixty lots of material were received for identification during the year.

Members of the staff of the division of plants assisted the Bureau of American Ethnology, the Geological Survey, and several bureaus of the Department of Agriculture, and numerous private and public educational and scientific institutions. Many of the requests from private individuals have to do with plant identification work, while others relate to recommendation of helpful descriptive and reference works, methods of botanical study, and the common names and uses of plants. During the year 316 lots of material, totaling 10,670 speci-

mens, have been received for examination and report. Many of these lots were conveyed informally, often in person, by visitors to Washington or by local residents. Of the larger accessions received for identification, there should be mentioned three shipments of historic Central American and Mexican material from the Botanical Museum in Copenhagen, and an extremely interesting collection of flowering plants and ferns from western Mexico sent by Mrs. Ynes Mexía, which contained specimens of great value to the National Herbarium.

Visits to other institutions or places on official work.—Toward the end of the year, Dr. A. Wetmore and Dr. C. W. Richmond visited Wingina, Va., for the purpose of packing up over a thousand bird skins presented to the Museum by Col. Wirt Robinson and transporting them to Washington. Dr. C. W. Stiles, custodian of the Helminthological collections, took part in the Tenth International Zoological Congress at Budapest as a representative of the Federal Government and the National Museum, and participated in the meetings of the Commission on Zoological Nomenclature of which he is the secretary, from August 20 to September 10, 1927. He visited the scientific institutions there and in the various European cities on the way with a view to the increased efficiency of the section under his care. Austin H. Clark, the curator of Echinoderms, at his own expense, attended the meetings of the American Association for the Advancement of Science from December 26–31, 1927, as a delegate from the Smithsonian Institution. Doctor Bartsch, curator of mollusks, in September, 1927, visited Dr. Carlos de la Torre at Habana, Cuba, to examine his rich private collection which embraces by far the most magnificent assemblage of Cuban land mollusks in existence. The month spent in reviewing the land shells of the family Annulariidae in this collection resulted not only in the material expansion of systematic knowledge of the group, but also in the addition of almost 200 unnamed forms. It also revealed that there still remain a number of regions in that large island which have been untouched and which will yield a rich harvest to the collector. During Doctor Bartsch's stay in Cuba the collections of the Academy of Sciences, Colegio de la Salle, and Colegio de los Escolapios were also examined and interesting information secured.

Visits to other institutions by members of the staff of the division of plants include a short period spent by the late Dr. J. N. Rose at the New York Botanical Garden for the study of leguminous plants; six weeks spent at the Field Museum of Natural History, by Paul C. Standley, in the autumn of 1927 for the purpose of preparing a catalogue of Yucatan plants, and two recent short visits to the New York Botanical Garden and the Gray Herbarium by Dr. A. S. Hitchcock, custodian of grasses, in connection with herbarium studies and projected field work.

The head curator of biology, at his own expense, visited European museums in the fall of 1927 for the purpose of studying museum technique and examining types and other material of reptilian species. He also attended the Tenth International Zoological Congress at Budapest, Hungary, from August 20 to September 10 as a delegate of the Federal Government and the National Museum. While there he took part in the deliberations of the permanent committee of the congress and of the Commission on Zoological Nomenclature, of which he is a member.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

Duplicates distributed to high schools, colleges, and other similar institutions aggregated 3,105 specimens, of which 1,788 consisted of mollusks in 12 prepared sets and 363 of fishes in 6 sets.

Exchanges to the number of 30,414 were sent out, of which 1,693 were zoological specimens. Of the 28,721 plants thus distributed, exchanges comprising lots of 1,000 specimens and over were sent to the Botanical Museum of Berlin-Dahlem, Germany; the University of California; the Field Museum of Natural History; and the Natural History Museum, Vienna, Austria. There were distributed as gifts 865 specimens, mostly living plants, belonging to the families Crassulaceae and Cactaceae.

NUMBER OF SPECIMENS UNDER THE DEPARTMENT OF BIOLOGY

The number of specimens, including duplicates, as far as has been ascertained by count and estimate, now exceeds 8,300,000. The total number is probably much greater since several collections, such as the corals, have not been included in the estimate, nor does the number of plants given below include unmounted material or the lower cryptogams.

Estimated number of specimens

Division :		
Mammals.....		83, 352
Birds :		
Skins.....	233, 912	
Alcoholics.....	8, 126	
Skeletons.....	9, 784	
Eggs.....	81, 507	
		<u>333, 329</u>
Reptiles and amphibians.....		85, 210
Fishes.....		710, 171
Insects.....		3, 132, 147
Marine invertebrates.....		786, 325
Mollusks.....		1, 663, 933
Echinoderms.....		151, 949
Plants.....		<u>1, 381, 250</u>
Total.....		8, 327, 666

REPORT ON THE DEPARTMENT OF GEOLOGY

By GEORGE P. MERRILL, *Head Curator*

1. INTRODUCTION

The division reports in the department of geology show commendable progress in the care of the collections and an encouraging outlook for their future development. The year has been one of continued effort to advance the arrangement and recording of the large collections recently received, our major efforts having been in this direction.

The upbuilding of the collections has been chiefly through purchases from the Roebing and Chamberlain funds; in the permanent acquisition of the notable Frank Springer collection of fossil echinoderms; and through collections made by members of the staff in the field.

Research work in the offices, laboratories, and in the field has been continuous, as will be noted elsewhere in more detail.

2. ACCESSIONS FOR THE YEAR

The tabulation below will show the accessions for the year. Comparison with last year, when 208 accessions with a total of 176,781 specimens were recorded, shows a slight increase in accessions but a decrease in number of specimens received. The present year, however, compares favorably with former less notable periods in the department's history.

Division	Accessions	Specimens
Geology, systematic and applied	21	128
Mineralogy and petrology	88	800
Stratigraphic paleontology	78	111,500
Vertebrate paleontology	25	319
Total	212	112,747

The ore collection has, as in the year previous, been enriched by Dr. W. F. Foshag's explorations in Mexico where he obtained series illustrating the geology and ore deposits of the Guanajuato, Zacatecas, Mapimi, Potosi, Los Lamentos, and Santa Eulalia districts.

These are all important for museum purposes in that they were selected by one trained in museum work. Some fine exhibition materials are included in these collections.

A small series of silver ores from a mine at Sabinal, Chihuahua, Mexico, presented by H. C. Chellson, Schenectady, N. Y., is of interest as illustrating rich ore containing primary native silver. Such ores, which are very desirable for study purposes, are commonly hard to obtain as, owing to their high bullion value, they are immediately shipped to the smelter.

Additions to the reference collection of foreign ores include examples of bauxite from various localities in Europe, received through exchange from Doctor Harrassowitz, Giessen, Germany, and a series of 32 specimens illustrating the iron ores of Lorraine, France, presented by Prof. L. Cayeux of Paris.

From the Mackay School of Mines at Reno, Nev., there was received a series of specimens of dumortierite mined in Nevada and used in the making of special high-alumina porcelain. A slab of travertine from near Salida, Colo., received from A. S. Ailes, Chicago, illustrates a domestic product very like the popular Roman travertine now on the market. A relief map of Glacier National Park, depicting its physiographic features, was presented by Edmund H. Whitlock, Philadelphia, Pa.

The United States Geological Survey transferred a minimum amount of material for permanent preservation, the more important being the quicksilver ores illustrating their Bulletin 795-E, and an interesting series of drill cores from the potash fields of western Texas and New Mexico.

Seven examples of meteorites, recorded under five accessions, were received during the year. Of these, mention should be made of a slice weighing 3,274 grams of the Youndegin, Australia, iron received as an exchange from Ward's Natural Science Establishment; an individual stone of the Forksville, Va., fall, acquired through arrangements made with the late Dr. Thomas L. Watson, who brought the fall to our attention; and a 24 $\frac{3}{4}$ -pound mass of an iron meteorite from Cananea, Mexico, doubtless a portion of the Arispe fall, received through an exchange with Prof. H. H. Nininger, McPherson, Kans.

The chief source of acquisitions to the mineral collections has been by purchases from the Roebing fund, 22 of the recorded accessions being so credited. Of these, the following may be noted: Examples of four new species, larsenite, murmanite, macgovernite, and warthaite; a fine group of azurite crystals and a unique twin crystal of cerussite weighing over 3 pounds, from Tsumeb, Otavi, and two clear beryl (aquamarine) crystals from Spitzkopje, Southwest

Africa; a crystal of lazurite (lapis-lazuli) with matrix, from Turkestan; a group of topaz crystals on tourmaline, from Ramona, Calif.; tourmalines in matrix from Maine; a large mass of glaucocroite with crystals of zincite, and other rare minerals from Franklin, N. J.; a large individual crystal of azurite, a slab of fine crystals of antlerite, and other choice specimens from Bisbee, Ariz.; a mass of fine pyrargyrite crystals from Sonora, Mexico; linneite in large crystals from Germany; and a mass of strongly magnetic lodestone from Utah.

The next largest single source of increase is the Chamberlain fund, to which 10 accessions are credited. In no one year since the fund became available have so many desirable additions been made to the Isaac Lea collection, to which the income of this fund is devoted. A most noteworthy and valuable single stone acquired is a 65-carat cut gem of alexandrite, a unique stone first discovered in Russia in 1831 on the birthday of Alexander II, for whom it was named. This stone possesses the unusual characteristic of changing color, being green by day and red by artificial light. Other stones acquired are a fine Mexican opal weighing 21.75 carats; a brown diamond of 1.4 carats; a large, fine colored citrine quartz weighing 264.75 carats; a blue-green tourmaline from Madagascar weighing 20 carats; 100 cut Montana sapphires showing range of color; 24 fine spinels; beads of rhodonite, malachite, and jasper; and five carved objects of rose quartz, malachite, agate, aventurine quartz, and rhodonite.

A further important addition to the gem collection is an unusual series of 16 cut stones of sphene, presented by Miss Nina Lea, granddaughter of Isaac Lea, the founder of the collection. The stones are graduated in sizes, the largest measuring 9 by 9 millimeters and weighing 1.8 carats, and the smallest 6 by 4 millimeters, weighing 0.152 carats. Being previously but meagerly represented, this gift of rare and beautiful gems is probably the outstanding addition of the year to the collection.

A gift from William B. Pitts, Sunnyvale, Calif., comprises five varieties of cut semiprecious stones with examples of the rough minerals from which they were derived. These are a very welcome addition to the rough and cut series.

In bulk of material acquired, first place must be given to the collections made by Dr. W. F. Foshag in Mexico, in cooperation with Harvard University. Among these the following selected specimens should be noted: Large and small groups of gypsum crystals from Naica, Chihuahua; large and exceptionally fine groups of pyrrhotite crystals on calcite, some of the individual crystals upward of 2 inches in diameter, from Santa Eulalia, Chihuahua; carminite from Mapimi, Durango; and wulfenite and other lead minerals from Los Lamentos, Chihuahua.

Other accessions worthy of mention are: Examples of teallite, one of the rare tin minerals, from Bolivia, gift of Jack Hyland; a mass of large vanadinite crystals from Los Lamentos, Mexico, gift of N. B. Braly; a large mass of pollucite from Maine, presented by Dr. G. P. Baxter through Mr. Frank L. Hess; and a twin crystal of diamond with simple crystal attached, gift of L. Oppenheimer, president of the Diamond Syndicate, London, England. Several new species and type specimens have been added to the study series by gifts and exchanges.

The outstanding accession of the year in stratigraphic paleontology is the Frank Springer collection of fossil echinoderms, with his very complete assemblage of literature on the subject, formally recorded as a gift soon after the lamented death of Doctor Springer in September, 1927. Although this collection was deposited in the Museum in 1912 and research work upon it continued by Doctor Springer during the intervening years, it did not actually come into the possession of the Museum until the date mentioned. This is undoubtedly the most complete assemblage of fossil echinoderms in the world, comprising upward of 75,000 specimens, several thousand of which are types upon which numerous monographs are based. The unstudied portion will add many thousands to the number given above. The collection occupies 1,250 standard drawers, a special room in the department having been assigned for its installation. In addition a very complete biologic and stratigraphic series derived from the collection is on view in the hall of paleontology.

A second gift of great value is the private collection of Dr. August F. Foerste, Dayton, Ohio, consisting of American Paleozoic invertebrates, and containing the types of the donor's numerous paleontological researches. But about one-third of the collection, comprising some 15,000 specimens, has as yet been received. It is expected that the remaining portion will be prepared for shipment during the coming year. The collection is especially rich in Silurian faunas of the Ohio Valley, assembled during Doctor Foerste's many years of research in this area, from which it is difficult to obtain even a meager representation to-day.

Type specimens of Upper Paleozoic Foraminifera and Ostracoda from Oklahoma and Texas were presented by Bruce Harlton, of Tulsa, Okla., and a series of washings from classic localities in Europe, collected by Dr. Joseph A. Cushman for the purpose of furthering his work on the Foraminifera, will afford many additional types.

Frank Beckwith, Delta, Utah, presented no less than 2,100 Cambrian trilobites and numerous Lower Ordovician fossils from an isolated area in Utah, which, known many years ago for its fine fossils, was lost to sight until its recent rediscovery. Material from

the Upper Cambrian of Blanco County, Tex., presented by Richard A. Jones, Junction, Tex., a second lot from southwestern Virginia by Charles T. Cate, Charlottesville; Upper Cambrian forms from Waynesboro, Va., gift of Wilbur A. Nelson, State geologist; and 43 specimens from southern California, 24 of which are types, donated by the University of California, are all valued additions to the study series.

An expedition to the Rocky Mountains by Drs. Charles E. Resser, and R. S. Bassler of the Museum staff, resulted in 1,600 carefully selected fossils from formations of Cambrian, Ozarkian, Canadian, and Silurian ages. Returning from this expedition by way of the Pacific coast, Doctor Bassler visited various well-known localities in California and collected selected lots of washings for micro-fossils. Field work by Erwin R. Pohl in Michigan and Ontario yielded at least 11,000 specimens of Ordovician, Devonian, and Mississippian fossils, chiefly valuable for study purposes, but many of exquisite preservation for exhibition.

Continued visits by Messrs. E. H. Vaupel and Charles O. Schlemmer, of Cincinnati, to the Early Silurian locality near Centerville, Ohio, mentioned in last year's report as yielding such excellently preserved fossils, added about 1,000 specimens to their previous gifts. Other donations worthy of special mention are a rare Silurian trilobite from the Ohio Valley, received from Prof. W. H. Shideler, of Oxford; a fine exhibition specimen of Devonian glass sponge, presented by Robert F. Hickey, of Apalachin, N. Y.; and an interesting collection of drift boulders, crowded with ostracods, secured from Dr. A. Franke, Arnstadt, Germany, by Dr. E. O. Ulrich.

Transfers from the United States Geological Survey include a collection made by T. S. Lovering of Upper Cambrian fossils from Colorado; also the types and figured specimens of Triassic invertebrates described by James Perrin Smith in his monographic papers on the Middle and Upper Triassic marine invertebrate faunas of North America, published as Professional Papers 83 and 141, of the Survey. The bulk of the material belonged to the Survey but Professor Smith also generously contributed many types from his personal collections.

Especially noteworthy additions to the Cenozoic invertebrates are comprised in the following gifts: Tertiary fossils from Venezuela, from the Venezuela Gulf Oil Co., New York City; washings rich in mollusks and micro-organisms, from the Eocene, Barton Cliffs, England, donated by Arthur G. Davis, London; 325 specimens from the Upper Lutetian (Eocene) of Bois Gouet, France, received from Maurice Gourdon, Nantes; 58 lots of mussels from the upper Amazon, Peru, sent by Dr. Joseph T. Singewald, Baltimore; and extensive

series of Eocene and Oligocene bryozoans and mollusks from Mississippi, from Prof. J. M. Sullivan, Jackson, Miss.

The collections of higher Crustacea in charge of Dr. Mary J. Rathbun have received a number of interesting additions, mainly through her personal efforts. All of these are donations. Among them are fossil crabs from the Pacific coast, from Dr. R. H. Palmer, Seattle, Wash.; a paratype of *Callianassa knaptonensis*, from the California Academy of Sciences; a complete carapace from the Cretaceous of Coon Creek, Tenn., from Prof. W. H. Shideler, Oxford, Ohio; and various specimens of interest from Brazos County, Tex., from John Vick and Charles L. Baker, of Bryan and Houston, Tex., respectively.

Exchanges have added to the Paleozoic, Mesozoic, and Cenozoic collections. These comprise characteristic Cambrian, Ordovician, and Cretaceous fossils from Denmark, Norway, and Sweden, received from the Mineralogical Museum, Copenhagen, through Dr. Christian Poulsen; a collection of about 1,000 invertebrates from the Mesozoic and Cenozoic of France and Belgium, from Ward's Natural Science Establishment; 173 lots of Tertiary invertebrates from the Eocene of Bavaria, from the Bayer Staatssammlung für Paleontologie und Historisches Geologie, Munich; 387 shells from the Tertiary of France, from M. Laire, Belval sùr Chatillon; 241 species of shells from the R. Università di Torino, Italy; 100 Permian bryozoans from the Wasatch Mountains, sent by Prof. A. L. Mathews, University of Chicago; and 200 Upper Paleozoic fossils from Ohio State University.

The accessions in paleobotany are few, but eight being recorded. The five of these noted below consist almost entirely of type specimens. The United States Geological Survey transferred 450 types and figured specimens of fossil plants from the Cretaceous of Alaska, described by Arthur Hollick; the types of the Denver flora described by F. H. Knowlton; Triassic plants from the Shinarump conglomerate and a collection from the Esmeralda formation of Nevada, described by E. W. Berry. A type collection of Triassic plants from York County, Pa., described many years ago in the Twentieth Annual Report of the United States Geological Survey, was presented by Prof. A. Wanner, Mount Gretna, Pa.

Of primary importance among the reptilian materials received is a skeleton of the extinct marine lizard *Clidastes*, purchased from George F. Sternberg. It is anticipated that this will be found on preparation to be sufficiently well preserved for exhibition. From the same source was obtained a skeleton of one of the rare three-toed horses from the Miocene of Wyoming. This, also, has not yet been prepared, but if our expectations are realized, an interesting skeleton mount will be added to the exhibits.

The series of fossil footprints was augmented by a few slabs resulting from Mr. Gilmore's third visit to the Grand Canyon. Especially remarkable among these is a large block of Hermit sandstone bearing on its surface the trackways of no less than three distinct kinds of animals.

Collections made by Assistant Curator Gidley at Melbourne and New Smyrna, Fla., furnish additional knowledge of the Pleistocene fauna of the State, and are thought to include new and important evidence on the disputed question of the antiquity of man in America. Doctor Gidley also secured a nearly complete shell of an extinct turtle, *Trachemys sculpta* Hay, which is probably the most perfect specimen of the species yet known.

Types of five species of fossil birds from the Oligocene of Colorado, described recently by Dr. A. Wetmore, have been deposited by the Colorado Museum of Natural History.

3. INSTALLATION AND PRESERVATION OF COLLECTIONS.

During his collecting in Mexico, Doctor Foshag secured from a cave in the Maravilla mine, at Naica, a group of gypsum crystals ranging from 3 to 5 feet in length. These have been arranged in their original cave setting in a case that forms an unusual and attractive feature of the exhibition hall. Other selected specimens from Doctor Foshag's collections fill the case assigned to recent accessions, which is intended to show newly acquired material pending its classification and exhibition elsewhere.

Selections from the Canfield collection of minerals, installed in one of the large upright cases, constitute an effective display; the exhibit of rough and cut stones of the gem collection has been reinstalled in a new setting; and a similar case contains choice miscellaneous mineral specimens, chiefly of the varieties used in gem and ornamental work.

A mass of highly magnetic lodestone from the Roebing collection has been placed without cover on a pedestal in the mineral hall, with a quantity of nails studded over its surface, to give visitors an opportunity for testing the magnetic property. This proves a source of never-failing interest, especially to children.

The exhibit of gold ores has been dismantled and rearranged, its crowded condition being relieved by the removal of some specimens and trimming down of others, resulting in a great improvement. A few other unimportant changes in the economic collections were deemed desirable and were carried out.

The biologic series of fossil invertebrates has been rearranged with a view to make it of more popular interest, and a large block of sedimentary rock from St. Clair County, Ala., illustrating an uncon-

formity, has been added to the exhibits of geological phenomena, whose crowded appearance along the center of the hall has been relieved by a better arrangement.

The availability of a new case has made possible the addition of a series of primitive types of fossil plants together with doubtful organisms often referred to the plants. Although excellent paleobotanical study material is received every year, additions of general interest to the public are few, and this part of the exhibition series must necessarily be of slow growth.

Work on the reserve or study collections has been pushed as rapidly as possible, but the many interruptions caused by other duties prevent continuous application.

Doctor Foshag has arranged the entire Roebing collection according to the Dana classification, and the cataloguing by Miss Moodey is about two-thirds completed. A total of 4,243 entries covering 8,186 specimens have been recorded to date. The Canfield collection has been provisionally arranged by James Benn, and the Mexican collections made by Doctor Foshag during the summer of 1927 have been unpacked and put away. Owing to concentration on the Roebing collection, only a very small part of the two last named has been catalogued.

Doctor Foshag states that over 96 per cent of the distinct mineral species known are now represented in the Museum's mineral collections. Many of those lacking are recently described species which it is anticipated will eventually be obtained. About 300 subspecies, varieties, and obscure and doubtful species are now needed for completeness.

Doctor Resser has been fully occupied with the Cambrian collections, the remainder of the material formerly stored in the Smithsonian Building having been transferred to the Museum. Doctor Bassler has cared for the post-Cambrian collections, exclusive of the Mesozoic and Cenozoic in charge of Dr. T. W. Stanton and Dr. Paul Bartsch, respectively. In this connection, obligation to members of the survey staff should be acknowledged. Without their assistance our accomplishments would be far less. Active work by Dr. E. O. Ulrich and his assistant on the preparation and study of the Ozarkian and Canadian collections has reduced these to choice, well selected study series.

Upon Doctor Springer's death, the care of his great collection of fossil echinoderms was turned over to the curator, thus imposing a task which will require several years for the final arrangement and recording of the specimens. Excellent progress has been made on this work and also on the completion of Doctor Springer's bibliographic index of fossil echinoderms, the last at his expressed wish, having been undertaken by Miss Margaret Moodey.

By the resignation of Dr. Erwin Pohl, aid in paleobotany, the entire care of the paleobotanical collections also devolved on the curator. Additional storage space has now made possible a permanent arrangement of the study series of fossil plants, which, with the assistance of a survey preparator, is well advanced.

With the appointment of a clerk in the division of stratigraphic paleontology, work which had previously been somewhat neglected on account of lack of help, was actively resumed. This refers particularly to the registration of the paleontological collections. Excellent progress has been made in this as well as in other lines of work for which the incumbent is fitted.

Work of the preparators in the division of vertebrate paleontology on the final preparation of the *Diplodocus* skeleton has been well-nigh continuous, and the tedious labor of freeing the bones from the matrix, which has engaged the activities of the laboratory force for the past four years, is at last completed. The erection of the skeleton for exhibition is now well under way, but it is expected that the time of the preparatory force for the greater part of the coming year will be fully occupied on this mount.

Remington Kellogg, of the Biological Survey, has furnished valued assistance in the arrangement of the cetacean collection. Crowded storage facilities were somewhat relieved by the erection of wooden racks on the steel cases, thus permitting a more systematic arrangement of the larger specimens.

It is a satisfaction to report that the study collections in all divisions of the department are now in better condition than at any time since their removal to the new building, though much still remains to be done to bring them fully up to the best standard.

4. INVESTIGATION AND RESEARCH

(a) *Research by members of the staff.*—The head curator has, as opportunity offered, continued his researches on meteorites, chief among these being his study and description of the large iron from the Wallapai Indian Reservation received late in the last fiscal year. Much time has been given to other work on meteorites and gem minerals.

In the chemical laboratory research has been actively carried on throughout the year. As a part of its studies there has been included investigation of the clay minerals in cooperation with a committee sponsored by the National Research Council, with C. S. Ross as chairman, the other members being George P. Merrill, Heinrich Ries, Paul F. Kerr, Herbert Inslee, Edgar T. Wherry, and Earl V. Shannon. The Roebling and Canfield collections have afforded type material of a number of minerals needed for the investigation, and the

work has gone forward in a satisfactory manner, the various phases being distributed among different scientific institutions.

Mr. Shannon, in collaboration with C. S. Ross, has completed an investigation of the composition and genesis of the nickel and chrome deposits and associated veins at Webster, N. C., and a series of unusual minerals from a manganese vein at Sparta, N. C., have been analyzed and described. These include one new species and one which previously was known in America from Franklin, N. J., only. Researches on tschermigite and associated minerals from Utah, and a study of the miargyrite silver ores from Randsburg, Calif., were completed and submitted for publication. Chemical analyses of the wardite series of phosphates were continued.

During the four months spent in Mexico, Doctor Foshag devoted a portion of his time to a study of ore deposits and mineral occurrences. The work has been continued in the office and laboratory since his return. The study of the iron ore deposits of Durango, begun last year, has been completed and that of the limestone ore deposits is well under way. Two new mineral species have been investigated and described; a third has been redefined.

Doctor Bassler, with Ferdinand Canu, has completed and submitted for publication a monograph of the Philippine Recent Bryozoa, illustrated by 97 plates and 250 text figures, to form a part of the series printed as Bulletin 100 of the United States National Museum. Also in collaboration with Mr. Canu, a work on Hawaiian bryozoans in the Museum collection was completed and published in the Bulletin de la Societe des Sciences de Seine-et-Oise. A study of the Permian Bryozoa of the Island of Timor, illustrated by 23 quarto plates, was finished and is now in process of publication abroad. Descriptions of Early Ordovician sponges from Nevada, including five new genera, were published early in the year.

The field season of 1927 and three months of Doctor Resser's time in the office were occupied in the completion of Doctor Walcott's manuscript on the "Predevonian formation of the Canadian Cordillera." The first part of studies on the Wisconsin Upper Cambrian, undertaken in collaboration with Dr. E. O. Ulrich, was completed, and also a study of Cambrian fossils from the Mohave Desert. The results of all of these are either published or are now in press.

Mr. Gilmore reports the completion and publication of a short paper entitled "A new fossil reptile from the Triassic of New Jersey;" the preparation and publication of "Fossil footprints from the Grand Canyon: third contribution;" the preparation of a short description of a new pterosaurian reptile from the Cretaceous of Oregon; and a joint paper with Dr. John C. Merriam, entitled "An ichthyosaurian reptile from the marine Cretaceous of Oregon." A short manuscript describing a new chelonid turtle from the Miocene

of California, and one descriptive of fossil footprints from the Paleocene of Montana were completed. Progress was made in the study of a collection of Mongolian turtles submitted by the American Museum of Natural History.

Doctor Gidley has continued research on the Pleistocene material from the Cumberland cave deposits and on collections from the east coast of Florida.

(b) *Research of outside investigators aided by Museum material, including work in the Museum or material loaned.*—As noted elsewhere in this report, 1,524 specimens have been transmitted to investigators outside of the Museum, and the collections of all divisions have been consulted and studied for varying lengths of time by numerous outsiders representing many of the scientific and educational institutions of the world. Of these, but a few whose researches have extended over considerable periods of time need be given personal mention.

As in previous years, the members of the United States Geological Survey have had access to the collections, and office rooms in the department, two of them officiating as custodians of portions of the collections. Their assistance in the work has been of great value. Dr. Mary J. Rathbun, collaborator in zoology, has for many years cared for and studied the collection of fossil crabs. Within the year she has named a number of small collections sent in for identification, and has published descriptions of two new forms from the Eocene of Texas. Dr. O. P. Hay has, as for many years past, continued to use the collections in connection with his studies of Pleistocene vertebrates, and Dr. Remington Kellogg, of the Biological Survey, shows unceasing interest in the fossil cetaceans.

Forest Gonyer, as student assistant, has spent the year working in the chemical laboratory. During this time he has made chemical investigations of Museum material under the direction of Messrs. Foshag and Shannon, and of clay minerals for the National Research Council.

The advantage derived from Dr. August F. Foerste's continued studies of our American Paleozoic cephalopods is mutual. Doctor Foerste spent the summer of 1927 in this research work, and in April, 1928, was appointed collaborator in the division of stratigraphic paleontology, leaving in June for four months of field work and study in various museums of Europe, in cooperation with the Smithsonian Institution.

Dr. Christian Poulsen, of the Mineralogical Museum, Copenhagen, spent three months in the department studying the Silurian faunas from northern Greenland and making comparisons with Alaskan and other fossils in our series.

Mention should also be made of the work of Prof. E. W. Berry on the paleobotanical collections. Under the auspices of the United States Geological Survey, Professor Berry has spent two days in each week at the Museum in research on the post-Paleozoic fossil plants. His assistance and advice are much appreciated.

The report should not be closed without mentioning the very interesting visits of Dr. D. J. Mushketov, director of the Russian Geological Survey. His interests lay more along lines of executive work and methods of recording and installation than in scientific research. He was also desirous of securing collections of representative American materials and arrangements were made for exchanges.

(c) *Assistance to other Government bureaus and individuals.*—There have been the usual number of visitors seeking information on various subjects and amounts of material received for examination and report. Of the latter, 426 lots have been received within the year, one of which contained over 200 specimens for identification and return to the sender. Our record shows that 485 letters from persons seeking information on geological subjects passed through the head curator's office within the year. This does not include letters received and answered personally by the members of the staff.

An investigation of the chemical composition of several old Chinese earthenware pots has been undertaken in the chemical laboratory for the Freer Gallery, and the facilities of the laboratory have been at the service of Doctor Lindgren and others of the National Research Council throughout the year.

The collections have been as usual at the service of students who have carried on their researches in the Museum, or to whom materials have been lent. Reference to other sections of this report will show the extent of this cooperation.

(d) *Visits to other institutions on official work.*—While conducting his explorations in Mexico, Doctor Foshag visited the Museo Nacional de Mexico, the Schools of Mines in Mexico City and Zacatecas, and examined the collections of the Chamber of Mines of Chihuahua as well as a few private collections. Several members of the department, when in attendance at the meetings of the Geological Society of America and affiliated societies in Cleveland, took advantage of the opportunity to visit the museums and private collections in that city.

5. DISTRIBUTION AND EXCHANGE OF SPECIMENS

Of the sets illustrating phases of rockweathering and soil formation, 25, aggregating 400 specimens, were sent out as gifts. Additional material prepared on special requests numbers 2,916 specimens

sent out as gifts; 1,524 as loans; and 3,119 specimens and 100 pounds of material in bulk as exchanges. One lot of 120 specimens was transferred to another bureau of the Government.

6. NUMBER OF SPECIMENS UNDER DEPARTMENT

The estimated totals as given by heads of divisions are as follows:

Division:	Specimens
Geology, systematic and applied-----	92, 758
Mineralogy and petrology-----	131, 923
Stratigraphic paleontology-----	1, 754, 279
Vertebrate paleontology-----	24, 042
Total-----	<u>2, 003, 002</u>

The first part of the report is devoted to a general
 description of the country and its resources.
 It is followed by a detailed account of the
 various divisions and their respective
 characteristics. The report concludes with
 a summary of the findings and a list of
 references.

The second part of the report is devoted to a
 detailed description of the various divisions
 and their respective characteristics. It
 includes a list of the various divisions
 and a description of each. The report
 concludes with a summary of the findings
 and a list of references.

DEPARTMENT OF ARTS AND INDUSTRIES AND DIVISION OF HISTORY

By WILLIAM DE C. RAVENEL, *Director of Arts and Industries*

The year ended June 30, 1928, was marked by a change of interest in objects attractive to the visiting public in this department. Col. Charles A. Lindbergh's memorable flight from New York City to Paris in May, 1927, started a wave of popular interest and enthusiasm in aviation which in its ever widening circle has included the Museum. The Museum aircraft collections have been studied as never before, and since Lindbergh's airplane the *Spirit of St. Louis* was installed in the north hall of the Arts and Industries Building in May, 1928, every American citizen visiting his capital city has felt the urge to see this epoch-making plane. The appeal of this object seems to be universal. The college professor shows no less interest or enthusiasm than the laborer from the street. The number of visitors to the Arts and Industries Building during June was about three times that of the preceding June and exceeded by 50,000 the number of visitors in the Natural History Building.

The past two decades have witnessed in the United States un-dreamed of advances in science, invention, and industry, and a new epoch in the world's history that has fundamentally affected the daily life of all its citizens. Opportunities for industrial exhibits of economic importance typifying the old and the new eras are constantly presenting themselves, as well as unusual opportunities to obtain historical objects. The Museum, however, now finds itself so greatly cramped by inadequate space that many offers of exceptionally appropriate donations have to be declined. The time has come when additional housing facilities must be provided if the national collections are not to stagnate. "A finished museum is a dead museum," as Dr. G. Brown Goode so aptly said, and at present there is absolutely no room for growth in the arts and industries and the historical collections. Valuable gifts have constantly to be declined because of lack of adequate space for their appropriate housing.

ACCESSIONS FOR THE YEAR

The department of arts and industries, and the division of history acquired 35,401 specimens during the year. In these branches of the national collections a specimen may mean an airplane or it may be a coin or postage stamp, yet the specimen must remain the logical

unit of measurement. The increment for this year is 150 per cent that of the preceding year. These objects were assigned by subjects as follows: To mechanical technology, 201; mineral technology, 1; textiles, 625; food, 42; organic chemistry, 245; wood technology, 1,914; medicine, 709; graphic arts, including photography, 1,812; Loeb collection of chemical types, 102; and history, 29,750.

It is obviously impossible to describe all the specimens received during the year but brief mention follows of such additions as deserve special attention.

Mineral and mechanical technology.—Of the 42 accessions received by these divisions during the year, 41 relate to mechanical and 1 to mineral technology, a 60 per cent increase as compared with the preceding year. The total number of objects in these accessions is 201, or 10 more than were catalogued the preceding year. In addition to these objects, 840 Patent Office models were permanently added to the collections. While this latter increment must be included in the total number of objects in the division, it was accessioned last year and, therefore, is not considered at this time in the comparison.

Foremost of the accessions of the year is the *Spirit of St. Louis*. The day that Colonel Lindbergh landed at Le Bourget airport, Paris, Secretary Abbot cabled the congratulations of the Smithsonian Institution and expressed the hope that the *Spirit of St. Louis* might eventually become a part of the famous collection of historic airplanes in the National Museum. On April 30, 1928, Colonel Lindbergh made a flight in the *Spirit of St. Louis* from St. Louis to Washington for the express purpose of depositing the plane in the Museum. After being dismantled at Bolling Field the plane was transported to the Museum on May 11, 1928, installed with the assistance of a corps of men from Bolling Field on May 12, and first viewed by the public in its permanent home on May 13, 1928. Suspended in the north or main entrance hall of the Arts and Industries Building and in proximity to other historic airplanes, the *Spirit of St. Louis* seems still to be flying, but now in echelon formation with the planes of da Vinci, Stringfellow, Lilienthal, Hargrave, and Langley on its right flank, and on its left, those of Wright, Curtiss, Voisin, the *NC-4*, *T-2*, the world flyer *Chicago*, and the Pan American amphibian *San Francisco*. Besides its great historical importance in having made the first nonstop trans-Atlantic flight between the United States and Europe, the *Spirit of St. Louis* is a valuable addition to the aircraft collection as typifying aeronautical developments of 1927. It was made for Colonel Lindbergh and his St. Louis friends by the Ryan Airlines (Inc.) and is of monoplane construction, with a wing spread of 46 feet, a fuselage length of 27 feet 5 inches, and powered by a 223-horsepower Wright air-cooled, radial,

9-cylinder engine. The propeller is made of steel and measures 9 feet from tip to tip. To carry sufficient oil and gasoline for the 3,610-mile flight three tanks were installed in the fuselage between the engine on the nose and the cabin aft. The first of these, immediately back of the engine, carried 28 gallons of oil, the next one 89 gallons of gasoline, and the last 209 gallons of gasoline. In addition, three gasoline tanks were built into the wing section immediately over the fuselage, holding a total of 153 gallons of gasoline.

A second important addition to the aircraft collections is the Pan American good-will flyer *San Francisco*, transferred to the Museum from the War Department. The good-will flight was started in the latter days of 1926 and was made by five Loening amphibian airplanes, which are capable of landing or taking off from either land or water. Under the command of Maj. Herbert A. Dargue, United States Army, the airplanes left San Antonio, Tex., and flew through Mexico and Central America, down the west and up the east coast of South America, through the West Indies, and up the north Atlantic coast line to Washington, where the flight ended June 2, 1927. The message of good will was carried to 21 American republics. Thereafter the *San Francisco* made numerous flights in the United States and Canada, so that, before being added to the aircraft collections, it had flown over the entire American continent, covering more than 30,000 miles. This plane, of a distinct type heretofore unrepresented in the aircraft collections, was designed and built by the Loening Aircraft Corporation.

A third important addition to the aircraft collection, presented to the Museum by the Curtiss Aeroplane & Motor Co. (Inc.), is an original Curtiss pusher type airplane of the period 1909-1914, a type made famous by the exploits of Glenn Curtiss and his pupils. A machine similar to this won the first international airplane test, held at Rheims, France, in 1909. In fact, the engine used in that test is incorporated in the Museum's accession. This is the type of airplane that made the first Albany to New York flight in 1910; that made the first round-trip flight from New York to Philadelphia; and that was used to make the first landing and take-off from the deck of a warship. This accession fills a period in the chronology of aeronautics heretofore unrepresented in the collections.

Still another valuable addition to the aeronautical collections made this year was the Army Curtiss racer airplane which won both the Pulitzer and Schneider races of 1925. The plane has been flown at a speed in excess of 250 miles an hour and is a wonderful combination of mechanical ingenuity and aerodynamical efficiency. It was received by transfer from the War Department and is exhibited in the aircraft building.

The aircraft collections were further augmented by such valuable objects as the first official trans-Atlantic air mail bag, carried by Commander R. E. Byrd in the flight in the airplane *America* from New York to Paris in 1927, received from the Post Office Department; also the balloon basket and all aerostatic instruments and equipment used by Capt. Hawthorne C. Gray, United States Army, in his fatal balloon altitude flight November 4, 1927, when he attained an altitude of over 42,000 feet, transferred from the War Department. The aircraft engine collection was very materially enhanced in historic value by the receipt of a Curtiss aircraft engine of 1908, presented to the Museum by Gould Dietz. This engine is a small four-cylinder, water-cooled gasoline engine made in 1908 for the United States Army's first dirigible balloon. The balloon in question was designed and built by the late T. S. Baldwin and was in every way successful for its time.

Several most important additions were made to the land transportation section. The first of these was an original White Stanhope steam automobile of the period 1901-2, presented to the Museum by the White Co., one of the few remaining pioneer organizations of the American automobile industry. As the White Sewing Machine Co., this organization began experimenting with self-propelled vehicles in 1899 and developed between that time and April, 1901, a steam-propelled passenger vehicle and a light delivery wagon. The accession is a product of the second year's output of this company.

The Museum's fairly complete collection of bicycles, especially of the earlier types, was augmented this year by two gifts. B. A. Bean contributed a Pierce-Arrow chainless, representative of the period 1900, and the Homer P. Snyder Manufacturing Co. (Inc.)—one of the few early bicycle manufacturers still engaged in this business—presented a bicycle typical of 1927. These two objects, exhibited in their proper places, make the series most complete in visualizing the significant steps in the development of the velocipede, starting with the "hobby horse" of 1819.

Miss Nannie Hamilton Janney kindly presented, for addition to the railway equipment collections, three models of Janney car couplers, two made by her father, Maj. Eli H. Janney, whose invention of 1873 is the basic patent for automatic coupling of railroad cars, and one model of an improved coupler devised by her brother, Robert E. Janney.

Probably the first successful commercial electric railway installation was that of Leo Daft for the city of Baltimore, Md., in 1885. Under the direction of Thomas C. Robbins, general manager of the Baltimore Union Passenger Railway Co., a suburban branch of the road was fitted out with the Daft electric railway equipment and on

August 10, 1885, regular service was inaugurated. Guy M. Gest, an engineer assistant to Mr. Robbins, piloted the trolley car on its initial run and subsequently made a number of photographs of the equipment. As a friend of the Museum, Mr. Gest has prepared and presented to the Museum a series of photographic enlargements from his original negatives. As now exhibited in the land transportation section, the series gives an enlightening pictorial record of this early electric railway experiment.

In the section of water transportation the series of objects visualizing inland water transportation was augmented by loan from the Hudson River Day Line of two models of river steamboats, to wit, Fulton's *Clermont* of 1807 and the *Hendrick Hudson*, built in 1906 and still in service on the Hudson between New York and Albany. The improvements made in a century are strikingly shown, since these models are made to the same scale.

The most valuable addition to the section of horology since the present curator has held office, is a gift from the New Haven Clock Co. comprising 75 objects, including an original Willard banjo clock and other early clocks and clock movements, modern clocks and clock movements, early and modern inexpensive watches and watch movements, an enormously enlarged working model of a watch escapement, and a special exhibit visualizing how standard time is determined, together with appropriate maps, charts, and photographs. The collection is a visual history of American clock and watch making since 1775, and as carried on by the New Haven Clock Co. since 1817 when the company was founded by Chauncey Jerome.

For use in the contemplated exhibit of steam-power plant developments two valuable accessions were received. The first is a model of a National water-tube boiler, typical of the period of 1876, presented by John A. Manley. The second, a model of a modern water-tube steam boiler, donated by the Erie City Iron Works, is a beautifully executed model made to a scale one-twelfth actual size, and gives a very good idea of the type of up-to-date equipment in use and available to modern industrial plants. Three outstanding features to be observed are the combined pulverizer and blower for burning pulverized coal, an economizer to make use of the waste products of combustion to preheat the feed water, and water-cooled furnace walls.

As indicated earlier, mineral technology received but one accession. This, however, is a most unique one. It is a 5-foot long section of an aqueduct extending from Cologne to Eiffel, Germany, built by Roman engineers in 80 A. D. The gift was made by the Eddystone Cement Co., through E. R. Wilmer. Along the Rhine River, between Cologne and Coblenz, occurs a deposit of volcanic mud composed of pumice dust mixed with fragments of pumice, carbonized wood,

and other materials. This deposit is called "trass" and is one of the group of puzzolan cements, used especially in Europe, which are capable of forming hydraulic cements on being simply mixed with lime without the use of heat. It was from this deposit that the Roman engineers obtained the trass to construct this aqueduct. The waterway is 44 inches high and 30 inches wide and the walls are approximately 15 inches thick, so that the overall width of the aqueduct is about 4 feet and its height 6 feet. The roof is arched, and it is in this part only that large pieces of limestone were imbedded in the trass, presumably to impart additional strength to the arch. The structure, as a whole, is quite similar in appearance to a modern roughly formed one of concrete. It apparently is as strong as ever, for the vibration of rock drills used in cutting out the section did not perceptibly injure it. It makes a most unusual and valuable addition to the exhibits of nonmetallic mineral industries and their products.

Textiles, foods, organic chemistry, wood technology, and medicine.—The accessions in the subjects under the general supervision of the curator of textiles numbered 92 and contained 3,535 specimens. This does not include several hundred patent models still under examination, some of which will later be definitely added to the collections.

The Museum is indebted to manufacturers and friends for cooperation in many lines in building up the collections and particularly in certain industries in supplying examples of new products as they appear on the market, thus keeping the exhibit series up to date.

Rayon, or artificial silk, is finding wider applications, and the technical problems encountered in its weaving, dyeing, finishing, and cleaning, are being rapidly overcome. Exhibit material for the Museum, illustrating its use in fabrics, was secured from several manufacturers. The Museum is indebted to Sidney Blumenthal & Co. (Inc.), for examples of plain and printed transparent velvet, a sheer, transparent fabric woven with a short rayon pile on a background of silk. Many beautiful designs or effects are possible because the dyes used in printing the patterns on the silk background show through to the face of the goods but do not change the color of the fine rayon pile.

The silk and rayon mixtures have been supplemented by the addition of rayon-filled cotton dress goods, contributed by the Pacific Mills, which show the transformation effected when this silk-like synthetic fiber is used in combination with the fiber of the cotton plant.

Novelty silk dress goods are constantly being superseded by newer ideas. A new 1928 series of printed silks featuring designs called

“Playgrounds of the world” and representing European as well as American resorts, was accepted from H. R. Mallinson & Co. (Inc.), to replace their National Park Series which was brought out as a 1927 novelty. This same firm contributed a large number of other textile fabrics to revise and improve the exhibits illustrating the technique of fabric ornamentation. These include examples of direct, discharge, and screen printing, warp-printed fabrics, and double-woven plain and printed silk-rayon velvets.

Mrs. Laura M. Allen, a skilled weaver, continued her work of collecting material to illustrate the history of yarn making and hand weaving in early American homes, and added 123 specimens to the Museum's collection, which now represents an unusually interesting and diversified assortment of this type of handicraft. The material so contributed this year included cotton-yarn, hand spun and twisted; hand carded wool formed into small rolls, the preliminary step to the spinning of wool fiber into yarn on the Colonial great wheels; a carpet weaver's guide or sample stick followed in weaving fancy stripe rag carpets; an old table cloth pattern known as “raindrop”; a copy of a Scotch rug of unusual weave; a woven tufted counterpane of ancient design; and a large collection of baskets, fans, and similar miscellaneous articles.

From the Crompton & Knowles Loom Works, the Museum received the gift of an automatic gingham loom of the latest type, for demonstrating in the textile hall the principles of weaving. This loom, which weighs 2,000 pounds, is equipped with a magazine of shuttle bobbins holding an extra supply of six colors of yarn and is so nicely adjusted that, just before the shuttle bobbin is exhausted, a new filled bobbin holding the desired color is automatically inserted in the shuttle without slowing down the weaving action of the loom.

The Museum's collection of original patent models of important textile inventions was augmented by the gift from George and Randolph Crompton of the model of the loom invented by George Crompton, father of the donors, which made it possible to triple the production of fabrics formerly woven on looms of this class. The model represents United States Patent No. 20044, issued April 27, 1858, by which locking bars were added to the shedding device of the famous 1857 closed-shed loom, thereby converting it into what is known as the open-shed type, and by applying or disconnecting a few small pieces the loom could be operated either with closed or open shed as desired.

In continuation of the policy of exhibiting the visual standards of commercial raw products made official by the United States Government, the Museum obtained by transfer from the Bureau of Agri-

cultural Economics of the Department of Agriculture three sets of Official Standards of the United States for grades of wool and wool top. These standard samples, beautifully mounted on boards covered with black velvet, form a fitting introduction to the Museum's exhibit of products of the wool industry.

To the observation beehive recorded last year there was added last July a supplemental exhibit in the form of a small glass hive constructed to hold cross-sections of honeycomb in a vertical position between panes of glass so placed as to permit a side view of the young bees in their cells. A small colony of Italian bees was installed in the hive and connection made with the outdoors by means of a large inclined glass tube and a 6-foot metal tube.

An exhibit showing various food and industrial products derived from ordinary field corn, which was presented in 1912 by the Corn Products Refining Co., was replaced by a new and larger series of specimens comprising starches, sugars, sirups, gums, and stock feeds, contributed by the same company.

Through the general cooperation of Thomas A. Keleher, a temporary exhibit in the form of about 300 live silkworms was installed in the textile hall during the early part of June, 1928, and proved to be a great attraction to all classes of visitors, especially children.

In the section of organic chemistry the largest group of specimens received was the gift from the Du Pont Viscoloid Co. of 125 specimens showing kinds and applications of pyralin. The new material added variety and brilliancy of color to the exhibit and replaced older specimens no longer manufactured.

From the Shawinigan Products Corporation was received a series of chemical specimens obtained from the raw materials, limestone, and coke. These when heated in an electric furnace produce calcium carbide that combines with water to form the gas acetylene. This gas by catalytic processes is converted into acetic acid, acetone, acetaldehyde, and numerous other chemicals having wide applications in the industries.

Steps in the process of producing viscose rayon were contributed by the Viscose Co., a large manufacturer of rayon.

Charles Weisker presented the Museum with millinery featherfancies, made from the feathers of domestic fowl, in which the plumage of egrets, birds of Paradise, and other birds forbidden to commerce by the Lacy Act is cleverly imitated.

The Museum is indebted to Louis C. Ude for the gift of a unique hand-tooled leather panel, specially made by him to illustrate the possibilities of heavy leather for decorative art. This specimen is a piece of heavy, rolled sole leather subjected to the flat-tooling operation by which the artist has developed an enlarged copy of Albrecht Durer's woodcut, The Four Horsemen of the Apocalypse.

Because of the danger of impure milk as a disease-carrying medium, health workers in the United States are engaged in campaigns to acquaint the people of the country with precautionary measures necessary to insure the purity of this important article of diet. To assist in this educational work, which has for its purpose the prevention of the spread of cholera, dysentery, diphtheria, scarlet fever, and typhoid fever, the Museum acquired a model dealing with this important subject. This model, illustrating several essential steps in the production of clean and pure milk, planned by the Museum and the bureau of dairying of the United States Department of Agriculture and constructed by the office of exhibits, was transferred to the Museum for permanent exhibition.

The National Association of Chiropodists contributed a complete exhibit dealing with the care of the feet. This exhibit consists of four modeled scenes and a series of 12 transparencies illustrating how the modern shoe, with its high heel and pointed toe, may damage the foot. It was planned at the Museum and made by J. H. M. Dudley.

The present death rate in the United States from diseases of the heart is recorded as 185 to each 100,000 population. Improved methods of dealing with heart affections, made possible by increased knowledge concerning diseases and harmful habits of living as well as by the modern methods of diagnosis by X ray and electrocardiograph, will undoubtedly play an important part in checking the depredations of these diseases when more people appreciate their individual part in the program of disease prevention. An exhibit, planned for the purpose of drawing attention to the various forms of heart disease, the causes of some kinds of preventable heart diseases, and how the improper functioning of the heart is detected by modern diagnostic methods, was specially constructed and donated to the Museum by the American Heart Association (Inc.).

An educational exhibit dealing with the subject of disease-carrying insects was made at the Museum during the year and added to the hygiene and sanitation collection.

The division of medicine arranged for the installation of an automatic delineascope, deposited by the Spencer Lens Co., for the projection of still films to illustrate health topics. Interesting and instructive films were received by the Museum during the year from the following contributors: Spencer Lens Co., National Tuberculosis Association, the American Social Hygiene Association (Inc.), Bray Screen Products (Inc.), Society for Visual Education (Inc.), and the American Association for Medical Progress (Inc.). The Public Health Service of the United States Department of the Treasury, and the Women's Bureau and the Children's Bureau of the United States Department of Labor, transferred films for use at the Museum.

The materia medica and pharmacy sections of the division were enhanced as follows: Parke, Davis & Co., contributed 76 specimens needed to illustrate the cultivation, collection, marketing, and medicinal use of aloes, camphor, ginger, and rhubarb. Sharp & Dohme (Inc.) donated 41 specimens, Eli Lilly & Co. 14 specimens, and E. R. Squibb & Sons 7 specimens, all relating to the medicinal uses of iron, potassium, and their various compounds. Merck & Co. (Inc.), continued the valuable cooperation rendered for many years by the presentation of 22 specimens of chemicals used in the preparation of medicines official in the United States Pharmacopœia X and the National Formulary V. The Dodge & Olcott Co. donated 32 specimens of essential oils used in medicine; and the H. K. Mulford Co. presented specimens of digitalin and digitoxin to complete the exhibit illustrating the physiological standardization of digitalis preparations.

The additions to the historic medical and pharmaceutical collections included the following received by transfer from the United States Naval Medical School: Two antiquated sphygmographs for recording the force, form, and movement of the various pulsations of the body; a plethysmograph, and two oncometers for measuring variations in the size of the arms and kidneys; a set of old-fashioned lavage tubes; an early differential thermometer for recording slight variations of temperature; a parabolic reflector used in operating rooms before the advent of spot lights; and a set of surgical instruments used during the Civil War by a Federal Army surgeon.

Dr. Carroll Dunham Smith contributed 396 vials of Jenichen's high potencies, which are of interest because they illustrate a type of medication adopted by the early practitioners of the homeopathic school of medicine, who advocated that remedies must be given singly and uncombined in doses only large enough to effect a cure, and because they were at one time the property of Dr. Constantine Hering, the physician who introduced homeopathy into the United States.

Dr. John Uri Lloyd, who has rendered valuable assistance for many years, made a further contribution consisting of the original concentrator and extractor which he used preliminary to the procuring of his patent for a still to abstract volatile constituents from plants by the application of heat for a few seconds only, thus saving delicate products altered or destroyed by the continued boiling necessary in ordinary stills; also the four Ebert medals awarded to the donor by the American Pharmaceutical Association for prize essays in the years 1882, 1892, 1899, and 1916. Dr. C. S. Amidon contributed, through Doctor Lloyd, the laryngoscope used by Dr. John King, a pioneer of the eclectic school of medicine.

Dr. Frans M. Olbrechts, of Washington, D. C., who devoted several months of the year to original research among the Cherokee Indians, collected a number of very interesting specimens used by the medicine men of that tribe, and donated them for addition to the exhibit of Indian medicine.

The most valuable accession of the year to the section of wood technology, both from the scientific and exhibitional standpoints, is the loan of the collection of walking sticks belonging to Rudolph Block. This is primarily a collection of the interesting woods of the world duly classified and indexed, the finishing of the specimens in the form of canes to bring out their inherent beauties being a secondary feature. No such collection exists elsewhere, and the Museum is indebted to Mr. Block for the opportunity to exhibit it for the benefit of all lovers of wood.

From a strictly scientific standpoint, two accessions of 87 and 30 specimens of woods collected in Sinaloa, Mexico, by the donor, received as gifts from J. G. Ortega, are the most important.

Another important exhibition series recently acquired is that showing steam distillation of resinous wood, arranged and presented by Hercules Powder Co. (Inc.), naval stores division. This contains 21 specimens showing longleaf pine and its principal derivatives, and 68 photographs picturing and describing various steps in the operation from drilling the stumps for blasting to barreling the turpentine and rosin.

Through the cooperation of the National Committee on Wood Utilization the Museum received as a loan 95 specimens and 6 photographs showing forest conservation by better utilization. This committee is making every effort to abolish wasteful methods of using wood and is offering instead ways that not only will put more and more of the rough lumber into the finished products, but will make those products better and stronger than formerly.

Graphic arts.—The 62 accessions received in the division of graphic arts, with its section of photography, contained an aggregate of 2,926 specimens, of which 1,812 became the property of the Museum and the remaining 1,114 were accepted as loans for exhibition. While the increment is less than last year, which was the banner year for this division in the matter of acquisitions, the number exceeds the annual average of recent years by about 30 per cent. Space permits of mention of only some of the more noteworthy additions of the year.

The Misses Mary Danforth Dodge and Elizabeth Dodge, through their father, Dr. Henry N. Dodge, made an important gift of 24 engravings by Moseley Isaac Danforth, one of America's foremost engravers. The examples are, in most instances, proofs which the

engraver kept in his own possession, are all in fine condition, and cover the wide field of his works from large figures and portraits to small delicate portraits and bank-note work.

Last year a few specimens of a new photo-mechanical process, Pantone, were received. This year a technical exhibit of the method was prepared and donated by the Pantone Process (Ltd.), and has been placed on exhibition. This consists of one progressive set of 4 plates and 2 prints from another plate showing the various stages of the process. The plates used are copper on which a very thin layer of chromium is deposited, .0001 of an inch thick. The half-tone or line image is put on by well-known photo-engraving methods. The plate is then etched in a solution of hydrochloric acid in glycerine. This rapidly dissolves the chromium which is unprotected. The etching ceases when it reaches the copper. Silver is now electrotyped on to the copper, the design still being in chromium. The resist is cleaned off and the plate treated with mercury, which forms an amalgam with the silver but not with the chromium. When printing ink is applied to the plate, it attaches itself only to the chromium areas, being refused by the nonprinting areas of amalgamated silver. In printing, the nonprinting areas gradually lose mercury. To overcome this and to keep the plate in efficient condition a small amount of mercury is added to the printing ink, thus maintaining a constant silver amalgam. Pantone plates can be printed on any letter-press or lithographic machine on a wide range of papers, including newsprint, antique, and cover qualities, with fairly uniform results.

Daniel Gibbons contributed a copy of the Philadelphia Herald of January 31, 1889, containing a half-tone portrait printed from a stereotype on a web perfecting press. As far as known this is the earliest example in a newspaper of a half-tone printed from a stereotype.

The firm of Wood, Nathan & Virkus Co. furnished 13 examples of Virkotype, a raised printing, and 7 samples of materials used in its production. In this method the letter press, type, picture, or whatever it may be, is printed with a sticky ink, then dusted with a rosin powder containing pigment which collects on the ink. It is then passed over a series of gas jets, melting the rosin; when cool the printing is raised in imitation of engraving.

Through exchange there was received a copy of a book of limited edition recently produced by Dard Hunter, entitled "Primitive Papermaking," being an account of his Mexican sojourn and voyage to the Pacific Islands in search of information, implements, and specimens relating to the making and decorating of bark paper. As in his three earlier books, Mr. Hunter used his hand-made type. The book is beautifully designed and printed and is illustrated with actual specimens of primitive paper.

Three accessions were received from the Laboratory Press of Carnegie Institute of Technology, containing 29 specimens of letterpress printing, nearly all being finely designed and printed broadsides. This school, under the direction of Porter Garnett, is producing much beautiful work.

William Edwin Rudge donated four examples of Micro-Form printing, reproductions of printed matter reduced to a very small size, including one volume of Mark Twain's *The Innocents Abroad*, of about 93,000 words printed on 13 pages, $5\frac{3}{4}$ inches by $3\frac{3}{4}$ inches.

Arthur D. Little (Inc.), presented two copies of their periodical, the *Industrial Bulletin*, No. 16, April, 1928, the first complete publication sent by telephoto and reproduced at the receiving end by zinc cuts. The accession included the master copy of the publication, the positive sending films and the received negatives, the 10 positive prints, and the 4 zinc etchings made from these and from which the publication was printed.

From Earle W. Huckel, who was formerly connected with the division of graphic arts, was received a gift of 54 new specimens and 81 specimens formerly loaned by him. This was made part of the permanent collections. The new gift contained prints, drawings, books, and some artistic relics of the famous American artists, Thomas Sully and John Neagle. Five paint brushes used by Sully and five which had belonged to Neagle, and a flute, which was one of Sully's cherished belongings, were among the specimens; also a number of sketches, several by Neagle, one by William Dunlap, and others by unknown artists.

Miss Diana Thorne generously donated 12 of her very attractive dry points. Her prints are mostly of animals and children and all are full of action; each print has a story to tell, usually very amusing. Miss Elizabeth Norton added five more examples of her work in print making from wood blocks. She produces prints in color and black and white of high artistic quality and is now represented in the museum by 23 prints. One print entitled "Down to the Valley" was made and contributed by Charles W. Dahlgren, and shows his method of combining aquatint and dry point with great success. Two typical examples of wood-block prints in color by Walter J. Phillips, "The Field Barn" and "Winter," were given by the artist and are beautiful examples of this method. An excellent Herkomergraph was acquired, an example of the unusual process developed by Hubert Herkomer imitating monotype. Other print acquisitions included a fine Felix Buhot, a dry point by the famous French sculptor, A. Rodin, and a print by Steinlen by an undetermined process.

The accession of outstanding historical importance, both to photography and to the photomechanical series, was a collection of 73

specimens of the work of Henry Fox Talbot, given by his descendant, Miss M. Talbot, O. B. E., who lives in the old home of this famous inventor, Lacock Abbey, Wilts, England. The specimens came as the result of a visit to the section of photography about a year ago by Marcus Adams, of London. These specimens were selected by Hubert Lambert and are representative of the work of Talbot. This heads the photographic accessions of the year. Thirty-two specimens related to photomechanical reproduction and 41 to photography. The museum has owned specimens of the work of Talbot for many years and had known of his ideas and methods, but there were certain things which he described in his patents of which no specimens seemed to exist. For instance, he described the use of a screen in the making of reproductions. This accession contained a crossline screen on glass, several plates with experimental screen effects, one etched steel plate of a leaf, obtained with the use of a screen, and a print from it. The plate, apparently made by the method described in his patent and also published in the *Athenaeum*, April 30, 1853, is doubtless of about that date, and is one of the early successful photomechanical reproductions made with a screen. The screen received is a photographic one taken from a cross-rules drawing, looks very much like a present day half-tone screen, and has about 85 lines to the inch. Other experimental plates were included, with three large finished plates, two on copper and one on steel; also 16 impressions from other plates. This makes very complete the Museum's collection of the photomechanical work of Henry Fox Talbot, who adapted photography to printing plates.

An early camera with a curious focusing device is probably the most valuable of the objects in this accession relating to photography. In the upper corner of the front board is a round hole, about as big as a finger, which contains a plug. Upon the removal of the plug, one can see on the back of the camera the image cast by the lens and by adjusting the lens can bring the image into perfect focus. One of the photographs of Fox Talbot in the section of photography shows this or a similar camera. One print in the accession is dated 1835, and there are others earlier than 1839, when photography was first announced to the world. The daguerreotype and Talbot's method were made known during the same year, but their methods and results were entirely different. (Talbot's method consisted of a negative from which as many positives as desired could be printed, while by Daguerre's process only one positive was made, and that was reversed.) Several paper negatives are included with fine prints from some of them; also a complete set of five numbers of "The Pencil of Nature," published in 1844 by Talbot.

The whole is an exceedingly valuable historical addition to the Museum's collection of photography and photomechanical repro-

ductions, as the specimens go back to the very beginning and are of the utmost authenticity.

The largest gift of the year came from I. N. Phelps Stokes and contained 1,361 specimens relating to Muybridge's work on motion pictures. Those included three of Muybridge's lectures, Nos. 1, 3, and 4, some 744 mounted blue prints, studies in animal locomotion, and 52 negatives from which positives were printed for projection in the zoopraxinoscope, all new to the Museum. This generous donation places the section of photography in a very strong position in its wealth of Muybridge material.

The apparatus used in receiving the first photoradiogram across the Atlantic was the gift of the Radio Corporation of America. The picture of President Coolidge sent from London was received on November 27, 1924, in the office of the company in New York City, where the recording of the picture was observed by a large group of people. The transmitter is in the Science Museum, South Kensington, London, England.

Radio vision apparatus was donated by C. Francis Jenkins, consisting of a part of the receiving apparatus used June 14, 1925, in a demonstration of radio vision before a distinguished group of people.

Miss Aida M. Doyle, of the Museum staff, gave the collection its only portrait on leather, a family portrait made by Fardon over 50 years ago, when experiments of this kind were being tried out.

Charles C. Jones made a very unusual contribution in the donation of a wet-plate transparency which he made from a formula published in *Photographic Mosaics*, in 1874, and still used in his work. Of about the same age were three albumen prints of the Wind River Mountains and Mammoth Hot Springs, donated by W. H. Jackson, who made them, in 1872-1878, while official photographer for the Hayden geological survey.

J. Schorp gave an interesting collection of carte-de-visite (portraits), tintypes, and ambrotypes. The carte-de-visite style of portraiture was introduced in the early sixties and became very popular. It was intended to take the place of calling cards; one left his portrait instead of his name.

A number of fine old cameras was added to the collection from various sources. Frank V. Chambers sent in three of very early manufacture, and also contributed three stereoscopic transparencies made by Bierstadt Brothers. A box camera, "Ray-C," with a novel duplicating device incorporated with the shutter, was the gift of Vincent Harris. A 6½ by 8½ camera with structural features of design different from any in the collection was presented by Miss Mary E. Trueman, who also made important additions to the magic lantern and lantern slide exhibit. Twelve of the 13 slides given were

animated and illustrate the clever devices used to introduce motion in projection. Miss Georgia M. Spruill loaned eight colored slides of early manufacture, which were used many years ago in magic-lantern entertainments.

To the pictorial photographic series were added two bromoil transfers of exceptional quality made by and the gift of Mrs. Ambrose Ralli, London, England. A very excellent daguerreotype, a gift of Arthur L. Stearns, should be mentioned. Two Brogen lenses, a gift of International Mutoscope Reel Co., through William Rabkin, president, were very much appreciated.

History.—To this division came 92 accessions, with an aggregate of 29,750 specimens, a larger number than received during the preceding year. Interesting additions were made to every section of the historical collections but the numismatic section received the most important accessions, in so far as intrinsic value is concerned, and the philatelic collections acquired the greatest number of specimens.

Among the acquisitions to the antiquarian collections were two silver candlesticks loaned by Peter A. Jay. These were originally owned by Chief Justice John Jay, of the United States Supreme Court, and they were used for the sealing of the treaty of peace between the United States and Great Britain at the close of the American Revolution, concluded at Paris, September 3, 1783. The treaty was signed by John Adams, Benjamin Franklin, and John Jay as the American envoys. Surveying instruments used in 1818 by Surveyor General John Johnson in the establishment of the boundary line between the United States and Canada, were presented by John Johnson Allen.

The Washington series was increased by a loan from W. Lanier Washington consisting of an oil painting of Mary Ball Washington and an oil painting showing General Washington reviewing troops.

Silver sugar tongs owned during the War of the Revolution by Maj. Gen. Nathanael Greene, Continental Army, were the gift of Richard W. G. Welling.

Additions to the military collections include a silk flag presented by the ladies of Nashville, Tenn., to the Nashville Battalion during the Creek War in 1813. This flag bears on one side the coat of arms of the United States, below a group of 18 stars and the legend, "God Armeth the Patriot." This interesting relic was presented by Mrs. Agnes K. Brent, through the Missouri Historical Society. The flag flown by Lieut. Gen. Nelson A. Miles when in command of the United States Army, 1900 to 1903, wearing apparel worn by him during the Civil War, and military commissions awarded him from 1861 to 1901, were received as a loan from his son, Maj. Sherman Miles, United States Army. George B. McClellan added a silk

banner, a gold badge, and two silver badges owned by Maj. Gen. George B. McClellan, United States Army, to the large series of objects belonging to his father, previously contributed.

Miss Genevieve A. Wheeler presented a sword and a uniform worn during the Civil War by Capt. Woodbury Wheeler, Confederate States Army. Swords, uniforms, and service badges owned by Lieut. Gen. Samuel B. M. Young, United States Army, were donated by his estate. An interesting addition to this portion of the collection was a military uniform worn in 1856 by Capt. Frederick Forsyth, of the Maine Militia. This uniform was donated by Thomas S. Forsyth, who also contributed a diplomatic uniform coat worn by William Pitt Preble when United States minister to the Netherlands in 1828.

A flag, album, and bronze medal presented to the President of the United States by the city of Antwerp in recognition of services rendered by the American Nation to Belgium and Antwerp during the World War, 1914-1918, were transferred to the Museum from the State Department. A German machine gun, captured on June 6, 1918, by the Ninety-sixth Company of the Sixth Regiment of United States Marines at Bouresches, France, was presented by Maj. Gen. George Barnett, United States Marine Corps.

The naval collections were increased by a series of interesting relics of Rear Admiral Charles D. Sigsbee, United States Navy, given to the Museum by Mrs. Nellie G. Gunther. This collection includes commissions, diplomas, decorations, medals, and badges associated with the naval career of Rear Admiral Sigsbee. Three ormolu brass vases inlaid with malachite, which were presented by the French Government to Admiral David D. Porter, United States Navy, were loaned to the Museum by Mrs. David D. Porter.

From the Treasury Department was received a series of 40 United States gold, silver, and bronze coins struck at the Denver, the Philadelphia, and the San Francisco mints in 1927, including double eagles, quarter eagles, dollars, half dollars, quarter dollars, dimes, nickels, and cents. The Treasury Department also contributed a series of 159 ancient Roman coins, 76 modern European, and 12 Oriental coins. A collection of 1,325 American and European coins and tokens was donated by Isaac M. Weills. This collection includes an interesting series of United States half cents, cents, 2-cent pieces, 3-cent pieces, nickels, dimes, half dimes, quarter dollars, half dollars, and dollars. Among the tokens were "hard times" pieces issued 1837-1841 and a number of Civil War tokens issued 1861-1865. The whole constitutes a welcome addition to the national numismatic collection.

Two decorations of more than usual historical interest were received during the year. One of them, the Order of St. Stanislaus,

was awarded in 1857 by Alexander II, Emperor of Russia, to Dr. Charles A. Leas in recognition of services rendered during the Crimean War, 1853-1856, and was presented to the Museum by Miss Fannie B. Frush. The other, an example of the bronze medal presented by the town of Langres, France, to the personnel of United States Base Hospital No. 53 in recognition of services rendered during the World War, was donated by Col. W. Lee Hart, Medical Corps, United States Army, who commanded the hospital during that period.

The commemorative medals added to the numismatic collection during the year include a number of special interest. From the general committee on Army and Navy chaplains through Rev. W. S. Abernethy, chairman, was received a bronze medal of the type awarded by the committee to chaplains of Protestant faith who served in the United States Army or Navy during the World War. From the Association of Official Agricultural Chemists was received a bronze medal commemorating the eightieth birthday of Dr. Harvey W. Wiley, October 18, 1924. The Vermont Historical Society gave a bronze specimen of the George F. Edmunds medal awarded by that society "to encourage young Vermonters to study the history and problems of their State and to honor the memory of George Franklin Edmunds."

Of more than usual interest was a set of 16 medals designed by the English inventor, Sir Edward Thomason, and bearing inscriptions relating to astronomy, chemistry, crystallography, galvanism, geology, hydrostatics, mechanics, metallurgy, mineralogy, optics, phrenology, Newcomer's steam engine, Savery's steam engine, Watt's single-action steam engine, and Watt's double-action steam engine. These medals, mounted in book form in a suitable case, were presented to the Museum by J. Earle Miller. Mention should also be made of the acquisition of bronze medals commemorating the completion of the Delaware River Bridge, 1926, and the New York to Paris airplane flight of Capt. Charles A. Lindbergh, 1927.

The philatelic collection was increased by 27,351 specimens, of which 4,441 were transferred from the Post Office Department. The latter included in triplicate recent regular and commemorative issues of all the countries belonging to the Universal Postal Union. Among the United States commemorative issues were a 10-cent air mail stamp bearing a view of the *Spirit of St. Louis* and celebrating Lindbergh's successful nonstop airplane flight from New York to Paris and stamps commemorating the sesquicentennials of the Battles of Fort Stanwix, Oriskany, Bennington, and Saratoga and the sesquicentennial of the independence of Vermont. Commemoratives were issued also by the following countries: Canada, Costa Rica, Cuba, Dominican Republic, Ecuador, Egypt, Estonia, Finland,

France, Germany, Great Britain, Greece, Haiti, Italy and colonies, Japan, Lithuania, Luxemburg, Netherlands, Norway, Philippine Islands, Poland, Portugal and colonies, Rumania, Russia, San Marino, Spain and colonies, and Turkey.

Mr. Weills, in addition to his gift of coins already mentioned, donated a very large series of postage stamps, aggregating some 10,000 specimens. A series of 41 varieties of Haitian stamps issued for use during the United States Marine occupation was presented by Chauncey Hackett.

Walter L. Gates continued his cooperation in building up the precancel stamp series by contributing his specialized collection of 2,770 specimens of Iowa precancels, the most complete series of that State in existence. The Precancel Stamp Society, through Mr. Gates as trustee, presented 10,076 precanceled stamps, the outstanding feature of which was complete panes of 100 postage due stamps of seven denominations precancelled Dayton, Ohio.

An item of unusual interest to the philatelic collection was the addition of two United States 5-cent stamps which were found caught in one of the seam folds of the mail bag carried by Commander Byrd on the flight in which his airplane *America*, after leaving New York June 29, 1927, landed in the sea off Ver-Sur-Mer, France, on the night of July 1, 1927.

The pictorial series was augmented by an oil portrait of J. P. Lesley, geologist, painted by Mrs. M. Lesley Bush-Brown, to whom the Museum is indebted for the gift.

Loeb collection of chemical types.—During the year 102 specimens were added to the lists in the Loeb collection, which now includes 1,092 specimens. Assurances of cooperation continue to be received, and several large university chemical departments have adopted the plan of having the research workers set aside portions of all new substances for the Loeb collection as they are prepared.

INSTALLATION AND PRESERVATION OF COLLECTIONS

The collections in the department of arts and industries and the division of history by their varied character require widely diversified treatment for their preservation and upkeep.

The classification, recording, and installation of new accessions, the rearrangement of individual exhibits, the revision of old and the preparation of new descriptive labels and the general maintenance of all collections, including the operative exhibits, occupied much of the time and attention of the force in all the various divisions during the year.

The seriousness of the shortage in exhibition space available to the divisions of mineral and mechanical technology had reached a condition by the end of the previous fiscal year requiring drastic measures. Accordingly, a detailed investigation and study were made of the materials long stored in the southwest range gallery, with a view to possibly eliminating much of this material so that the gallery could be made available for exhibition purposes. By the concentrated efforts of the staff of the divisions and the construction force of the Museum, the gallery was made ready early in the spring for exhibition material and the installation was at once started. The sections of horology, weights and measures, calculating machines, typewriters, and scientific instruments used in metrology and surveying were transferred from the main floor of the Museum and installed in this new gallery space. With ample light from skylights, these valuable collections are here exhibited to far better advantage. The change, too, has permitted the bringing out of storage many objects pertaining to these subjects for which there was previously no space.

This change practically emptied the east south range on the main floor of the Arts and Industries Building, where it is proposed to build an exhibit of steam power plant engineering developments. As yet very few of the desired objects for this proposed exhibit have been received, and the space is, therefore, being used temporarily for the growing machine-tool section, as well as the telephone, telegraph, and talking-machine collections.

Twenty-five installations of new exhibits or rearrangements of exhibits which were already on view were made in the textile halls during the year. The most important of these were an entire rearrangement of the large steel case on the east side of the south hall containing textile machinery and appliances, a condensation and rearrangement of wool and wool spinning processes, and the new exhibits of silk, rayon, worsteds, and mixed fabrics.

In the section of foods the small observation beehive and the exhibit of corn products were set up during the year

Twenty-two new or rearranged installations were made during the year in the division of medicine, the most important being the heart, and insect exhibits, the model of a sanitary milk house, the model illustrating the care of the feet, the automatic delineascope, and the exhibit of surgical instruments. The history of medicine collection had become so congested that the entire series had to be rearranged. In addition, it was deemed advisable to make a separate alcove of the cases devoted to the history of homeopathy, eclectic medicine, and osteopathy, and provide separate cases for the previously scattered surgical instruments. These changes made necessary a concentration of the exhibition series of *materia medica* specimens.

In the wood court 15 installations of exhibition material were made during the year. The derived wood products, the camp-fire model, and tree-planting exhibits were rearranged; the hardwood distillation series and animated forest fire model were reinstalled and the forest protection exhibit of posters was partly new and partly rearranged. More than a thousand woods which came prior to this year were cut to suitable size and placed in the study collection. In addition, 980 hand samples of woods were prepared for this collection and 1,640 for distribution and exchange. The care of the live exhibits of honeybees and silkworms, and of the mechanical models and exhibits, has also taken up much of the time of the assistant preparator.

The cataloging of all the textile specimens received during the year and the preparation of the technical descriptions and labels for them were done by the aid, Mrs. E. W. Rosson. She also planned the exhibits of new fabrics arranged to show types of decoration.

In the division of graphic arts, 16 special loan exhibitions were held during the year, not counting the Cleveland Photographic Society's exhibit held over from the preceding year.

The exhibits held in the Smithsonian Building were as follows:

August 2 to 27, 1927: Fifty Prints of the Year, through the courtesy of the American Institute of Graphic Arts.

October 3 to 29: Thirty-five contemporary English lithographs, lent by the Print Makers Society of California.

October 31 to November 26: A series of etchings, 23 by Richard E. Bishop, 15 by Roland Clark, and 18 by Eric G. Scott.

November 28, 1927, to January 2, 1928: Fifty-four wood-block prints in black and white and in color, 44 by Harold Haven Brown and 10 by Mrs. Florence Baldwin Brown.

January 3 to 28: Thirty-five wood-block prints in color by Frances H. Gearhart and 15 color etchings by May Gearhart.

January 30 to February 26: Forty-six etchings and dry points by Armin Hansen.

February 27 to March 26: Fifty etchings and dry points by Charles W. Dahlgren.

March 26 to April 22: Fifty wood-block prints in color by Walter J. Phillips.

April 23 to May 20: Fifty dry-point etchings by Diana Thorne.

June 13 to 30: Fifty Books of the Year and Printing for Commerce, under the auspices of the American Institute of Graphic Arts.

The special loan exhibitions of pictorial photographs held in the Arts and Industries Building were as follows:

October and November, 1927: Fifty carbon prints by Charles Job, F. R. P. S., Richmond, Surrey, England.

December: Two hundred and twenty pictorial photographs from the seventy-second annual exhibition of the Royal Photographic Society of Great Britain, London, England.

January, 1928: Forty-one bromoil transfers by Herbert Bairstow, F. R. P. S., Halifax, England.

February and March: Five bromoil transfers by Mrs. Ambrose Ralli, London, England.

March: Forty-three pictorial photographs by James M'Kissack, F. R. P. S., Glasgow, Scotland.

April and May: Thirty-five pictorial prints by J. M. Whitehead, Alva, Scotland.

These special exhibitions mean much labor but are doing much in the diffusion of knowledge. Besides the installation of the special loan exhibitions, new cases provided this year permitted the rearrangement and increase of the permanent collections. The monotype exhibit of artistic picture printing was again placed on exhibition. The work "Primitive Papermaking," by Dard Hunter, was so installed that several pages are to be seen. The Ben Day Rapid Shading Medium was renewed and remodeled. The new process of Pantone was installed. Part of the Ferris collection was on exhibition all year.

Four of the traveling exhibits were renovated and additional specimens added. One of the exhibits, No. 2, was entirely rematted and the specimens covered with celluloid. The catalogue of the traveling exhibit, written some time ago by R. C. Smith, was revised, and was published by the Senior High School Print Shop, Johnstown, Pa.

In the section of photography the historical motion-picture material was installed on the new shelving on the north side of the gallery. Some rearrangement of the permanent collection of pictorial photographs was also made.

In the division of history comparatively few changes were made in the arrangement of the exhibition series. That of greatest importance was the installation of the collection of American and foreign swords in 16 standard slope-top cases in the northwest court of the Arts and Industries Building. These cases display a very complete series of American and foreign military and naval swords, many of which were formerly in storage.

The status of the historical collection continues to be far from satisfactory. The division of these collections into widely separated units and the installation in halls partly occupied by materials of a totally different character render it impossible for the public to appreciate either the magnitude of these collections or their real historical significance. Especially is this true of the military collections. These collections were received for the most part from the War Department, and that department has for some time been impressed with the importance of adopting some method of improving the present conditions of the installation of this important series. With this aim in view, the Secretary of War, in May, 1928, designated Maj. Louis A. O'Donnell, United States Army, as the special

representative of the War Department for the purpose of making a detailed study of the situation and devising, if possible, some method of improving the present arrangement.

INVESTIGATION AND RESEARCH

Research by members of the staff.—The curator of mineral and mechanical technology, Carl W. Mitman, continued his horological studies as opportunity, offered and prepared and published an article on watchmakers and inventors. The Handbook of the National Aircraft Collection, by Paul E. Garber, assistant curator, came from the press early in the year. The assistant curator's studies resulted also in the preparation of a memoir on building and flying model aircraft, which was likewise published privately.

The study of the genus *Gossypium* and other genera related to the cotton plant, begun some time ago by Frederick L. Lewton, curator of textiles, was continued during the year and a paper describing a new genus of African shrubs was published by him. Much time was also given by the curator to the study of certain large groups of patent models transferred from the Patent Office, including those relating to the history and development of the sewing machine, fundamental loom motions, and early types of shoemaking machinery, primarily to determine which should be permanently retained in the Museum as representing epoch-making inventions. Data for a bulletin on the development of the sewing machine were assembled.

Dr. Charles Whitebread, assistant curator of medicine, completed a handbook descriptive of the hygiene and sanitation exhibits, which was published during the year. He also gave considerable study to the subject of electrotherapy and a paper outlining the results was presented for publication; and he began the preparation of a paper relative to the development of diagnostic methods.

The assistant curator of wood technology, William N. Watkins, identified and classified the material in two collections of woods, one of Philippine species and the other from Mexico, and determined the identity of many other scattered species. He carried on experiments to determine to what extent the fluorescence of extracts of woods to the genera *Eysenhardtia* and *Pterocarpus* could be relied upon in determining their identity.

Ruel P. Tolman, assistant curator of graphic arts, devoted much attention to searching out and verifying miniatures painted by Edward Greene Malbone, preparatory to a memorial exhibition of this artist's work which it is proposed to hold next winter in the National Gallery of Art. He prepared and published an article on bookbinding at the National Museum and revised the catalogue of the Graphic Arts Exhibit, for use with the traveling exhibits.

T. T. Belote, curator of history, completed a memoir on the military and naval swords in the National Museum collection, on which he has been engaged for some time. A short paper on the philatelic collection of the Museum was prepared by Mrs. C. L. Manning, philatelist, and published early in the year.

Research of outside investigators aided by museum material.—The first steam locomotive built in the United States for actual service on a railroad was the "Best Friend," made in 1830 at the West Point Foundry in New York for the Charleston & Hamburg Railroad Co., now a part of the Southern Railway system. The most complete assemblage of data on this historic locomotive is probably that contained in the study files of the divisions of mineral and mechanical technology and in the locomotive exhibit. These data were used during the year by the Southern Railway Co. with a view to constructing a replica of the "Best Friend." For this purpose a draughtsman of the company was detailed to the Museum for two weeks, during which time scale drawings were made from the material here.

During the first two months of the fiscal year two artists from the Bureau of Roads, Department of Agriculture, were detailed to the Museum for the purpose of making copies of many of the photographs and drawings of land vehicles in the study collections. The information thus obtained is to be used in a proposed series of traveling exhibits at the various county fairs throughout the United States, to visualize improvements in land transportation.

Experts from the United States Tariff Commission made a study of the collections of laces and machine embroideries in the division of textiles for use in a forthcoming bulletin. Henry C. Dexter, president of the Old Slater Mill Association at Pawtucket, R. I., and an expert of the firm of Fales & Jenks Machine Co., of that city, made drawings and measurements of the Samuel Slater spinning frame exhibited in the textile hall, for the purpose of building a replica of the old machine to be placed in the Old Slater Mill, where this famous piece of cotton machinery was in operation from 1790 to about 1835.

Prof. Charles C. Adams, director of the New York State Museum, studied the collection of colonial weaving and other household implements for the purpose of describing and exhibiting a large lot of similar material in his museum. A large series of samples of wool dress fabrics were loaned to Terhune, Yereance & Wolff (Inc.), for a study of the designs prevalent many years ago. Specimens of vegetable ivory buttons in process of manufacture were loaned to O. F. Cook of the Bureau of Plant Industry, Department of Agriculture, for use in illustrating a scientific paper.

Some 1,400 specimens of wools were transferred to the division of animal husbandry, Bureau of Animal Industry, Department of Agriculture, for the use of Dr. J. I. Hardy in his study of changes in stored wools. The greater part of this collection represented the large series of wools examined by the technical jury at the World's Columbian Exposition, Chicago, Ill., 1893, and reported upon by Dr. William McMurtie. Specimens of velvets were furnished the chief examiner of the textile division of the Patent Office for use in deciding patent applications. Forty-seven original patent models of beehives and apiary supplies were transferred to the bee culture laboratory of the Department of Agriculture, Somerset, Md., for study.

From the large collection of tropical woods received from the Yale School of Forestry last year, 648 duplicate specimens were cut and transferred from the Museum's collections to the Forest Products Laboratory at Madison, Wis., maintained by the Forest Service of the United States Department of Agriculture.

Dr. Howard Dittrick, of the Cleveland Medical Library Association, Cleveland, Ohio, spent several days studying the history of medicine exhibits, making notes to assist in the duplication of some of the exhibits for the Cleveland Museum.

Specimens of woods for research were furnished to the Saxon Geological Survey, Leipzig, Germany; the Phoenix Products Co., Milwaukee, Wis.; Marlin Williams, Culver City, Calif.; and to the School of Forestry, Yale University, New Haven, Conn.

Assistance by members of the staff to Government bureaus and individuals.—Probably the most unique and comprehensive educational exposition on transportation ever presented in the United States was the "Fair of the Iron Horse," held during September and October, 1927, at Halethorpe, Md., near Baltimore, in celebration of the one hundredth anniversary of the founding of the Baltimore & Ohio Railroad Co. In the preparation of this exposition the curator of mineral and mechanical technology, Carl W. Mitman, was in constant communication and conference with Edward Hungerford, director of the centenary, and members of his staff, for three months prior to the opening of the exposition. Historic accuracy of early land-transportation developments was particularly desired, and it was as technical adviser in such matters that the services of the curator were sought and given in his official capacity.

Popular interest in aviation led the National Playground and Recreation Association, New York, to incorporate courses in model airplane construction and model airplane flying competitions in its program of playground activities. The services of Mr. Garber were procured by the association as technical adviser in this new model

airplane activity. During the year he contributed liberally of his time in developing the work.

Constant use is made of the collections and library by private individuals in the determination of early patented improvements of commercial products. Investigations of this nature during the year included the study of the interchangeability of wheels on land vehicles, made by J. H. Boyden, a representative of the National Automobile Chamber of Commerce, New York. With the assistance of members of the staff, all wheel vehicles in the collections, including wagons, bicycles, and automobiles, were thoroughly examined. Another investigation in this field was that on improvements in carburetors, made by a patent attorney of the Tilson Co., Toledo, Ohio, for which the rather meager collection of carburetors and the technical library were consulted. The Spencer Lens Co., of Buffalo, N. Y., contemplating improvements in the modern microscope stage, was aided in its investigations by the loan from the optical-instrument series of a microscope possessing a number of movable stage features.

In addition, help was given others having hobbies of various sorts, such as the construction of locomotive, boat, and airplane models, and even full-size boats.

Numerous visitors in search of special information suggested by the exhibits made particular use of the technical books in the sectional libraries on textiles, woods, and drugs. The curator and assistant curators in these subjects furnished special information on industrial raw materials and the identification of specimens to several bureaus of the Government, and to numerous individuals. Aid in planning displays, making suggestions for models, and the identification of specimens of fibers and fabrics, gums, resins, seeds, and woods for individuals both in and out of the Government service continued to be a part of the regular work. Mr. Lewton, as heretofore, furnished the identification of cottons and cottonseeds introduced by the office of foreign plant introduction, United States Department of Agriculture, and to him were referred letters requesting information on silk and rayon received by various Federal departments. He furnished information on the taxonomy and geographic distribution of cottons of the Western Hemisphere to the cotton research station, Trinidad, British West Indies.

The assistant curator of graphic arts, Ruel P. Tolman, supplied information regarding prints and paintings in response to a number of inquiries.

Several requests were received for assistance in locating the source of chemicals. In each instance these materials were not in the Loeb collection of chemical types, but the curator, Maj. O. E. Roberts, jr., was able to locate their source for the inquirers.

Six lots of specimens were received for identification and report by the curator of textiles and the members of the staff under his supervision, and 47 lots of material were received for identification by the division of history.

NUMBER OF SPECIMENS UNDER DEPARTMENT

The total number of specimens in the department of arts and industries and the division of history on June 30, 1928, was 481,437 assigned as follows:

Mineral technology-----	4,189
Mechanical technology-----	7,584
Textile-----	11,232
Wood technology-----	7,588
Organic chemistry-----	17,907
Foods-----	1,150
Medicine-----	14,711
Graphic arts, including photography-----	30,436
Loeb collection of chemical types-----	1,092
History-----	385,548
	<hr/>
	481,437

1891

1892

1893

1894

1895

1896

1897

1898

1899

1900

LIST OF ACCESSIONS TO THE COLLECTIONS DURING THE FISCAL YEAR 1927-28

[EXCEPT WHEN OTHERWISE INDICATED, THE SPECIMENS WERE PRESENTED OR WERE
TRANSFERRED BY BUREAUS OF THE GOVERNMENT IN ACCORDANCE WITH LAW]

- ABBOTT, Dr. WILLIAM L.**, Northeast, Md.: 188 mammals collected on the islands of Sipora and Siberut, off the west coast of Sumatra, by Mr. C. B. Kloss, Raffles Museum, Singapore (97934); 62 recent bats and a large collection of bones from caves; reptiles, fishes, crustaceans, invertebrates, sea-urchins, mollusks, birds, and insects, collected in Haiti by A. J. Poole (99430); approximately 1,400 ethnological and archeological specimens; a lot of human skeletal material, including teeth and skull parts; a lot of animal, bird, and fish bones, and a collection of land and marine shells collected in the vicinity of Samana Bay, Dominican Republic, during the spring of 1928 by Mr. Herbert W. Krieger (101590).
- ABERNETHY, Rev. W. S.** (See under General Committee on Army and Navy Chaplains.)
- ABRAMS, Prof. LeROY.** (See under Stanford University.)
- ABREU, Señor MIGUEL**, Constanza, Dominican Republic (through Dr. A. Wetmore): Specimen of plant (96970).
- ACADEMY OF NATURAL SCIENCES**, Philadelphia, Pa.: 1,555 plants (97674, exchange) (through Dr. Francis W. Pennell); 256 specimens of plants collected in Peru and Chile by Doctor Pennell (99290) (through Morgan Hebard); 100 specimens of insects (Orthoptera) (101091, exchange).
- ACADEMY OF SCIENCES**, Zoological Museum, Leningrad, U. S. S. R.: 3 skeletons and 21 alcoholic specimens of birds (98232, exchange).
- ADAMS, MARCUS.** (See Under Miss M. Talbot.)
- ADAMSON, JACK**, Portland, Oreg.: Burrows made by a boring clam (99109).
- AGRICULTURAL AND MECHANICAL COLLEGE**, Stillwater, Okla. (through George F. King: 2 flies and their puparia (101372).
- AGRICULTURAL EXPERIMENT STATION**, Department van Landbouw, Paramaribo, Surinam: 10 plants from Surinam (99564, exchange).
- AGRICULTURE, DEPARTMENT OF:**
Bureau of Agricultural Economics:
Practical forms of the Official Wool and Wool Top Standards—Set No. 253 Official Wool Standards, Partial, 7 grades for grading wool in the fleece; Set No. 141 Official Wool Standards, Complete, 12 grades; Set No. 142 Official Wool Top Standards, Complete, 12 grades (94299).
Bureau of Animal Industry: 30 specimens of snails from Oregon (98704, 98743).
Bureau of Biological Survey:
Seeds of the wild poppy from Alaska; 72 plants collected in Alaska by O. J. Murie; 101 plants, chiefly from Alaska; also 12 specimens of insects (96545; 97149; 101138); 17 bird skeletons (97622); 2 amphipods from Sanford, Fla., collected by F. M. Uhler; bones of a goshawk from Florida; 19 plants from Florida, collected by W. L. McAtee (98444; 100210; 100739); skeleton of a white pelican from Nevada (98536);

AGRICULTURE, DEPT. OF—Contd.

Bureau of Biological Survey—Con.

2 crayfishes from Brownsville, Miss., and 1 from Winnesheik Slough, Lynxville, Wis., collected by F. M. Uhler (98857); 15 eggs of 3 specimens of water birds from Oregon, and 10 toads from Klamath Falls, Oreg. (99025; 99301); skin of a tanager from Panama (99769); (through James Silver) 4 amphipods from a well in Ohio (99915); 53 reptiles and 58 amphibians (100194); 5 specimens of crustaceans from Louisiana and Oregon (100195); 3 birds of paradise (100216); 3 insects (100754); 2 skeletons of the prairie falcon (101530); 1,046 mammals transferred by the Biological Survey between July 1, 1927, and June 30, 1928 (101988).

Bureau of Dairying: A model illustrating how clean milk is produced (101568).

Bureau of Entomology: (Through Bee-Culture Laboratory, Somerset, Md.) a small colony of 3-banded bees (97433, loan); (through A. B. Gahan) 10 specimens of cladocera and a leech from Kansas (97472), isopod from Florida (99926); (through W. A. Baker, Arlington, Mass.) 8 flies (100328); (through H. C. Hallock, Westbury, Long Island, N. Y.) fly (100958); (through W. S. Fisher) 612 specimens of Diptera, comprising 598 undetermined forms and 14 paratypes of 4 species (101043); (through S. A. Rohwer) 10 isopods from Oregon, collected by Harry Sargent (101131); (through A. F. Burgess, Gypsy Moth Laboratory, Melrose Highlands, Mass.) 2 flies, paratypes (101143); 27,769 miscellaneous insects, out of the material received by the various specialists during the fiscal year 1927-28 (102012).

AGRICULTURE, DEPT. OF—Contd.

Bureau of Entomology—Contd.

(See also under Richard Messer.)

Federal Horticultural Board:

Hermit crab from Jamaica (94093); snail and 2 isopods; 18 isopods and a crab; 9 isopods; 2 isopods and 2 snail shells; approximately 10 barnacles attached to a piece of bamboo, an isopod and a shell (96982; 98217; 99786; 100004; 100788; 101098; 101334); nematode from Baltimore, and 2 slugs from Jamaica (97131); 8 specimens, 3 species, of land and marine mollusks from Bermuda, Jamaica, and Maryland (97376); 4 specimens, 2 species, of mollusks from the Azores, and 4 isopods (97608); 4 isopods from England and Cuba, and 3 specimens of land and fresh-water shells from Europe (97682); 11 isopods from China, Scotland, and Colombia; also 6 specimens, 3 species, of mollusks from Colombia and Scotland (97908); 2 isopods, one from France and the other from Italy, and a number of shells from Ireland (97926); isopod from Japan (98068); 8 specimens, 2 species, of slugs from Holland, Belgium, and Canada, and 3 specimens of isopods taken from plant importations (98698); 3 specimens, 2 species, of mollusks from Germany and Jamaica, and 8 isopods from Germany and Holland (98876); 6 isopods and 5 snails and slugs from Holland and Japan (99088); 3 slugs and 2 shells from England and Ireland; 3 isopods from Switzerland and Holland, and 4 amphipods from British Honduras (99491); 10 isopods, 3 species, and 10 land snails from Honduras (99596); 2 slugs from England and Cuba, and 3 isopods from Chile and China (100225); 5 specimens,

AGRICULTURE, DEPT. OF—Contd.

Federal Horticultural Board—Con.

4 species, of land mollusks from England and Germany (100489); cone and seeds of the southern European stone pine (100608); land shell from Porto Rico 100724); slug from Holland (100857); 2 land shells from England and an isopod from Austria (101579); 14 isopods, 3 species; also 15 land shells from Germany and Japan (101124); 4 specimens, 2 species, of slugs from Scotland (101310); 12 specimens, 5 species, of land and fresh-water shells from Holland and Jugoslavia (101519); tarantula and a crab from Cuba (101596).

Forest Service: (Through W. A. Dayton) type specimen of a plant (98031); photograph of a plant from Colorado (99289); 2 photographs of plants (99476); plant (cotype) from Colorado (100335); (through H. R. Kylie) lighted model entitled "Fires destroy trees and soil" (101341, loan); (through Dr. F. V. Coville) 2 plants from the western United States (101603).

Bureau of Plant Industry: (Through Dr. T. H. Kearney) 1,346 plants (97352, 99288, 99326, 99334, 99563, 99781, 100020, 101347, 101545, 101556, 101557, 101864, 101865); (through H. C. Skeels) 189 plants collected in Manchuria by P. H. Dorsett (97413); 4 plants from California (97994); 6 plants from Colorado (98282); (through Dr. F. V. Coville) plant from Kansas (98269), 12 plants from western United States (98472), 4 plants from the southeastern United States (98481), 80 plants from Maine collected by J. C. Parlin (98509), plant from Massachusetts (98860), 18 photographs of type specimens of plants (99295), 5

AGRICULTURE, DEPT. OF—Contd.

Bureau of Plant Industry—Contd.

plants from New York (99357), seeds and photographs of a plant from California (99358), 48 packets of seeds (98471); (through Dr. C. L. Shear) 9 plants from Mexico and 3 from Maryland (98988, 99296); (through Prof. A. S. Hitchcock) 2,043 mounted specimens of grasses (99147, 101133) and 7 plants from China (100019); (through J. A. Stevenson) 20 plants, 6 specimens of mosses, 3 plants from Brazil (99562, 99794, 100166); through Walter T. Swingle) 139 plants from Arizona and California (101881). (See also under Miss Enid R. Heine.)

AHERN, Maj. GEORGE P., United States Army (retired), Washington, D. C.: A floor mat in the form of a map of the Philippine Archipelago woven from the dyed strips of pandanus leaves by Tagalog natives (100055).
AILES, A. S., Chicago, Ill.: Slab of travertine from near Salida, Colo. (99174).

ALASKA AGRICULTURAL COLLEGE AND SCHOOL OF MINES, THE, College, Alaska (through Dr. Charles E. Bunnell, President): Skeleton of a child (99598).

ALASKA GAME COMMISSION, Juneau, Alaska (through Dr. W. H. Chase): Specimen of cottoid fish, and mandibular bone of a whale (98039).

ALDRICH, Dr. J. M., Washington, D. C.: 4,500 specimens of Diptera (flies) from the western United States, collected by the donor in the summer of 1927 (100321).

ALEXANDER, Dr. C. P., Amherst, Mass.: 89 flies from New Zealand; 257 from Chile, 3 paratypes of 2 species of flies, 6 moths and a cicada (99105); 55 specimens of flies including a paratype, collected by Pirion and Jaffuel in Chile (99342); miscellaneous insects from New Zea-

- ALEXANDER, Dr. C. P.—Continued.**
land and the Philippines, including 7 vials of immature stages of crane-flies (100307).
- ALFARO, DON ANASTASIO, San José, Costa Rica:** 21 specimens of fishes from Costa Rica, and fragments of gold and copper ornaments, copper beads and shell beads also from Costa Rica (101081, 101527).
- ALLEGANY SCHOOL OF NATURAL HISTORY, Quaker bridge, N. Y. (through Dr. R. E. Coker):** Small collection of myriapods collected in the Allegany State Park during the summer of 1927 (97788).
- ALLEMAN, CHARLES D., Canal Zone:** 49 marine shells, 97 specimens of land and marine shells, 52 specimens, chiefly marine shells, and 371 specimens, 37 species, of marine shells from Taboga Island, Panama, including the types of 7 new species, all the material from Panama (96969, 98048, 99584, 100361).
- ALLEN, ADDISON W., Oshkosh, Wis.:** Model of an ice boat incorporating features of modern types (100066).
- ALLEN, Dr. CHARLES FRANCIS HITCHCOCK, Medford Hillside, Mass.:** 17 specimens for the Loeb Collection of Chemical Types (97567).
- ALLEN, Dr. HORACE N., Toledo, Ohio:** 116 Korean ethnological specimens formerly on deposit (101058).
- ALLEN, JOHN JOHNSON, Burlington, Vt.:** Surveying instruments used by Surveyor General John Johnson in the establishment of a preliminary boundary line between the United States and Canada in 1818 (95588).
- ALLEN, Mrs. LAURA M., Watertown, N. Y.:** Wool rolls, hand-spun and twisted cotton yarn, hand-weavings, a "Weaver's Guide" followed in weaving a "fancy stripe" carpet, and a booklet made up of 12 photographs of hand-woven coverlets, intended to illustrate the evolution of domestic manufactures, collected by the donor from various weavers (97993); a miscellaneous collection of 116 hand-woven baskets, fans,
- ALLEN, Mrs. LAURA M.—Continued.**
and other objects, and a hand-woven "tufted" weave counterpane (101017).
- ALLEN, Mrs. T. R. (See under Adele Lewis Grant.)**
- AMANI RESEARCH INSTITUTE, Tanga, Tanganyika Territory, Africa:** 3 specimens of insects, parasitic on a rat in East Africa (100490).
- AMERICAN ASSOCIATION FOR MEDICAL PROGRESS, INC., New York City:** Film "Medical progress" for use in the automatic delinescope to supplement the exhibits in the "Hall of Health" (98438).
- AMERICAN HAIR FELT CO., Newark, N. J. (through Tanners' Council of America, Inc., New York City):** Specimens of hair felt for installation, polishing, padding, and wadding, and a shot-gun shell showing the use of felt wads (100960).
- AMERICAN HEART ASSOCIATION (INC.), New York City:** An exhibit consisting of 4 scenes, X-ray pictures and pathological drawings, illustrating 4 types of heart disease; also comparative statistical models showing the incidence of this disease in the United States (99529).
- AMERICAN INSTITUTE OF GRAPHIC ARTS, THE, New York City:** "Fifty Prints of the Year" for special exhibition during the month of August, 1927 (96100); "Fifty Books of the Year" (81 in all); and 50 examples of "Printing for Commerce" for special exhibition during the month of June, 1928 (101743). Loan.
- AMERICAN MUSEUM OF NATURAL HISTORY, New York City:** 3 bird skins representing 3 genera new to the Museum; bird skin, new to the Museum collections; 2 bird skins from Africa, representing genera new to the Museum; 18 bird skins, representing 15 genera new to the Museum collections; 5 bird skins from Ecuador, representing 4 genera new to the Museum (98656; 99774);

AMERICAN MUSEUM OF NATURAL HISTORY—Continued.

100306; 100708; 101745, exchange); (through Barnum Brown) casts of 6 chipped blades found in association with extinct mammal remains (101059).

AMERICAN SOCIAL HYGIENE ASSOCIATION, THE, New York City: 4 films, "The Gift of Life," parts 1, 2, 3, and 4, for use in the automatic delinroscope (98271).

AMERICAN TELEPHONE & TELEGRAPH CO., New York City: Bell System hand telephone set of 1928, consisting of a transmitter and receiver in one piece and a stand for holding same equipped with dial for automatic calls (101533).

AMIDON, Dr. C. S., Cincinnati, Ohio (through Dr. John Uri Lloyd): A laryngoscope, including case and accessories, used by Dr. John King, a pioneer in the Eclectic School of Medicine (100039).

AMORY-BOWMAN LABRADOR EXPEDITION, THE, Washington, D. C.: Approximately 500 mollusks, 30 fishes, 7 birds, 2 mammals, 1 reptile, 4 batrachians, 676 echinoderms, 262 insects, approximately 5,217 marine invertebrates, and 1 fungus collected from the north side of Matamek River, Province of Quebec, Canada, collected for the National Museum (95992).

ARCHAEOLOGICAL SOCIETY OF WASHINGTON, Washington, D. C.: Collection of approximately 523 specimens of bone and stone implements, and teeth, from Castel Merle, near Sergeac, Dordogne, France, secured in 1927 by the American School of Prehistoric Research, through Dr. George Grant MacCurdy, Director (98484, deposit).

ARMITAGE, H. M. (See under Horticultural Commissioner, Los Angeles, Calif.)

ARNDT, Dr. C. H., Port au Prince, Haiti: Specimens of fresh coffee berries, preserved in formalin, dried coffee berries, and washed coffee in

ARNDT, Dr. C. H.—Continued.

parchment skin (96589); 2 plants from Haiti (99377).

ARSÈNE, Rev. Brother G., Las Vegas, N. Mex.: 1,020 plants from New Mexico (99031).

ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS, Washington, D. C.: Bronze medal commemorating the eightieth birthday of Dr. Harvey W. Wiley, October 18, 1924 (100524).

ATWELL, H. C. (See under Oregon State Board of Horticulture.)

AUVILLE, BAXTER, Montrose, W. Va.: 17 specimens of Devonian fossils from West Virginia (99161).

EVERY, EDWARD A. (See under Smithsonian Institution, National Museum, collected by members of the staff, William N. Watkins.)

AYRES, Dr. HOWARD, Cincinnati, Ohio. Crayfish (type specimen) and a pen and ink drawing of the same (100359).

BACHARACH, Dr. GEORGE, Fordham, N. Y.: 3 specimens for the Loeb Collection of Chemical Types (99078).

BAILEY, Dr. L. H., Ithaca, N. Y.: 4 plants and 2 photographs of cacti 98193, 99540); plant from California (101380).

BAILEY, VERNON, Washington, D. C.: Photograph of a plant (100043).

BAIRSTOW, HERBERT, F. R. P. S., Summercroft, Halifax, England: 41 bromoil transfers for special exhibition during the month of January, 1928 (99605, loan).

BAKER, C. F., Los Banos, P. I.: A collection of miscellaneous insects, chiefly Malayan, approximately 300,000 specimens, and 3 slides of a species of amphipod (101048, bequest).

BAKER, CHARLES L., Houston, Tex.: Small crab from Brazos County, Tex. (97417). (See also under John Vick.)

BAKER, CLEMENT W., Waynesboro, Ohio: Butterfly (97670).

- BAKER, Dr. F. H.**, Richmond, Victoria, Australia: 11 specimens, 6 species, of marine shells; also 9 insects all from Australia (98524; 99367, 100196, 101280).
- BAKER, THOMAS E.**, Fredericksburg, Va.: Stone ax, 4 arrowheads, and a quartzite reject found on the property of the donor (101876).
- BAKER, W. A.** (See under Agriculture, Department of, Bureau of Entomology, Arlington, Mass.).
- BALL, T. R.**, Baltimore, Md.: Moth (97769).
- BALL, WILLIAM HOWARD**, Washington, D. C.: Towhee bunting, skin of a catbird, and a gadwall and coot, all from Virginia (98728, 99371, 99573); 4 birds from North Carolina and 2 from the District of Columbia (98856); red-winged blackbird from the District of Columbia (99385); red-backed sandpiper from Hains Point, D. C. (99121); cardinal (101357); red-backed sandpiper (101587).
- BARNES, L. D.**, Fitzwilliam, N. H.: Deformed jaw of a domestic calf (100228).
- BARNES, R. M.**, Lacon, Ill.; Moth (100182).
- BARNES, Dr. WILLIAM**, Decatur, Ill. (through F. H. Benjamin): 9 specimens of Lepidoptera, paratypes of 7 species (97774).
- BARNETT, Maj. Gen. GEORGE, U. S. M. C.** (retired), Washington, D. C.: German machine gun captured by the Ninety-sixth Company of the Sixth Regiment of United States Marines at Bouresches, France, June 6, 1918 (101513).
- BARTLETT, Prof. H. H.**, Ann Arbor, Mich.: Collection of plants from Formosa and Sumatra, collected for the National Museum (92945); a small billet from a rough-barked mutant of Hevea wood (100573).
- BARTLETT, Capt. ROBERT A.** (See under Putnam Baffin Island Expedition, New York City.)
- BARTON, H. S.**, Owensboro, Ky.: Approximately 70 specimens of freshwater jelly fish from Indian Lake, Owensboro, Ky., collected by the donor (98054).
- BARTRAM, EDWIN B.**, Buskill, Pa.: 2 plants from Arizona and 18 plants from New Zealand (100948, 102016). (See also under Prof. Manuel Valerio.)
- BARTSCH, Dr. PAUL**, Washington, D. C.: 2 eggs of the Arctic tern from Quebec (97373); 7 crustaceans collected by the donor (97695).
- BASSLER, Dr. R. S.**, Washington, D. C.: 100 lots of recent bryozoa collected in southern California (98463). (See also under Smithsonian Institution, National Museum, obtained by members of the staff, Charles E. Resser.)
- BATES, Rev. J. M.**, Red Cloud, Nebr.: Type specimen of fungus from Nebraska (100773).
- BAYERISCHES STAATSSAMMLUNG FÜR PALAENTOLOGIE UND HISTORISCHES GEOLOGIE**, Munich, Germany: 173 lots of Tertiary invertebrates from the Eocene of Bavaria (95846, exchange).
- BAYERISCHES STAATS-HERBARIUM**, Botanisches Institute, Munich, Germany (through Dr. Karl von Schoenau): 146 specimens of ferns from Brazil (100612, exchange).
- BAYLEY, IVAN A.**, North Sydney, Nova Scotia (through O. Gaylord Marsh, American Consul, Sydney, N. S.): 3 specimens of parasitic copepods from a sunfish, together with a piece of the skin, collected by the donor (100809).
- BEACH AFRICAN EXPEDITION** (through Mr. William N. Beach, New York City): Collection comprising 49 mammals, 212 birds and 21 nests, 20 reptiles, 65 fishes, 70 insects, 201 mollusks, and a small collection of woods, collected by Messrs. Marcus Daly, Osgood Field, and W. L. Brown in Sudan (100386).

- BEACH, WILLIAM N.** (See under Beach African Expedition.)
- BEAL, Prof. J. M.,** Agricultural and Mechanical College, Miss.: 3 plants from Mississippi (101749).
- BEAN, B. A.,** Washington, D. C.: Pierce-Arrow bicycle representative of the period 1900 (100045).
- BEAUREGARD, Mrs. N. H.** (See under Mrs. Agnes Kennett Brent.)
- BECKMAN, CHARLES,** Arlington, Oreg.: Small collection of archeological specimens from Oregon (100067).
- BECKWITH, FRANK,** Delta, Utah: 1,000 specimens of Middle Cambrian trilobites from Antelope Springs, Utah, and 40 slabs containing Cambrian and Ordovician fossils from Utah (97418); 200 specimens of Cambrian trilobites and 2 slabs of Ordovician fossils from Nevada (99528); 150 specimens of Ordovician fossils from Utah (101987).
- BEDFORD, G. A. H.,** Pretoria, Union of South Africa: 22 specimens of early stages of flies, including some new to the Museum collections (98560, exchange).
- BEGIEN, Mrs. R. N.,** Richmond, Va.: Broken skull, 2 lower jaws, and parts of a human skeleton from a site about 20 miles from Columbus, Ohio (97697).
- BELEW, Mrs. G. B.,** Harmon, Okla.: Plant (98028).
- BELL, E. L.,** Flushing, N. Y.: Butterfly, paratype of a new species, from Texas (97350).
- BENEDICT, C. B.,** Fort Lupton, Colo.: Beetle (97684).
- BENEDICT, Mrs. FRANCES B.,** Silver Spring, Md.: Sea catfish taken on hook and line 2 miles north of Piney Point, Md. (98052).
- BENEDICT, Dr. J. E.,** Washington, D. C.: Female specimen of scarlet tanager from Maryland (101558).
- BENEDICT, J. E., JR.,** Linden, Md.: 16 mollusks from North Carolina, 110 insects and a small collection of salamanders (97381); crayfish from Smoky Mountain, near Indian Gap, N. C. (97620); 53 fishes, approximately 20 amphipods, and 178 specimens of marine invertebrates collected by the donor in the vicinity of Piney Point, Md. (97992, 99123, 100796); 35 specimens of mosses from Ohio (98720); 10 fresh-water isopods collected by the donor from a pool on Stone Mountain, Ga. (101335); 5 lizards, 9 salamanders, and 1 frog from the southern United States (101359); shrew (101884).
- BENEDICT, N. D.,** Hastings, Fla.: Approximately 61 specimens of marine invertebrates comprising about 50 amphipods, 2 crabs, 2 leeches, and 7 oligochaets from Florida (98286).
- BENJAMIN, F. H.** (See under Dr. William Barnes.)
- BENN, JAMES,** Washington, D. C.: 6 fishes from the Chesapeake & Ohio Canal and Oxon Run, D. C. (98264); brook trout from the upper reaches of Little Difficult Run, Va. (101894).
- BENNETT, J. C.,** Victoria, British Columbia, Canada: 6 plants (98871).
- BENNETT, Mrs. LOUIS,** New York City: 2 bronze British Victory Medal oak leaves, and the bronze Cross of Service of the United Daughters of the Confederacy awarded to Lieut. Louis Bennett, jr., Royal Air Service (100443).
- BENT, A. C.,** Taunton, Mass.: 6 pieces of Eskimo costume (97146).
- BERGER, ALWIN,** Stuttgart, Constatt, Germany: Photograph of a plant (97922, exchange).
- BERKELEY, Miss ALFREDA,** Toronto, Canada: 5 specimens of mysids (98514).
- BERKELEY, FRANCIS L., jr.,** Red Hill, Va. (through D. I. Bushnell): Cache of 21 quartzite blades found on the Berkeley farm at Red Hill, Va. (99369).
- BERLINER, EMILE,** Washington, D. C.: Framed photograph of microphonic air gap produced in the laboratory with equipment incorporating the principle of the Berliner loose contact telephone transmitter (97370); microphone (toy drum); a

- BERLINER, EMILE**—Continued.
reproduction made and used by the donor on October 31, 1879, of a microphone first used by him March 4, 1877 (99361).
- BERMUDEZ, PEDRO**, Habana, Cuba: 27 lots of topotypes of Cuban land shells (98491).
- BERRY, Dr. EDWARD W.**, Baltimore, Md.: 2 specimens of ferns from Peru (99177).
- BERRY, Dr. S. S.**, Redlands, Calif.: 11 specimens, 3 species, of land shells (including 5 paratypes of 2 species) from Montana (101467, exchange).
- BETTS, AMOS A.**, Phoenix, Ariz.: Fragment of Francesco de Pinedo's airplane, consisting of a piece of silvered cloth $3\frac{1}{2}$ by $8\frac{1}{2}$ inches (97371).
- BIALYNICKI-BIRULA, A.**, Leningrad, U. S. S. R.: 54 specimens of determined Vespidae from Russia, representing 16 species (100205, exchange).
- BISHOP, RICHARD E.**, Philadelphia, Pa.: 23 etchings for special exhibition from October 31 to November 26, 1927 (98978, loan).
- BISHOP, S. C.**, Albany, N. Y.: 2 types of new species of salamanders and 1 larval salamander (101560).
- BLACKISTON, A. H.**, Los Angeles, Calif.: Babylonian cuneiform tablet (99169, loan).
- BLACKISTON, Miss HELEN**, Montevallo, Ala.: Larva of a moth from Alabama (100451).
- BLAKE, Mrs. D. H.** (See under J. O. Martin.)
- BLAKE, Dr. S. F.**, Washington, D. C.: Fern from California (97380). (See also under Field Museum of Natural History, Chicago, Ill.)
- BLAND, Hon. OSCAR E., and Hon. FRED. E. DYER**, Washington, D. C.: 2 Algonkian skulls from Indiana (99746).
- BLOCK, RUDOLPH**, New York City: Collection of the woods of the world turned in the form of 1,400 walking sticks mounted and finished (101564,
- BLOCK, RUDOLPH**—Continued.
loan); a small billet of "pink Ivory" wood from Zululand (101570).
- BLOGG, P. T.**, Baltimore, Md.: Specimen of Prothonotary warbler from Maryland (97357).
- BLUMENTHAL & CO. (INC.), SIDNEY**, New York City: 5 samples of rayon pile fabrics "La Loie Silvel" in plain and printed patterns (100332).
- BOALO, D. C.**, Washington, D. C.: Skein of raw silk produced at Sovere, Provencia di Bergano, Italy, by Amerigo Boalo, brother of the donor (101766).
- BOGUSCH, E. R.**, Austin, Tex.: 3 plants from Texas (100301). (See also under Texas, University of, Department of Botany.)
- BOSTWICK, LA PLACE**, Miami, Fla.: Valve of a pearly fresh-water mussel (100602).
- BOSWELL, J. S. C.**, North Braddock, Alexandria, Va., and C. S. East, Washington, D. C.: Loggerhead turtle from Greater Hunting Creek, Alexandria, Va. (98042).
- BOTANIC GARDENS**, Singapore, Straits Settlements: 58 specimens of ferns from the Malay Peninsula; (through Dr. R. E. Holttum, director): 190 specimens of mosses, chiefly from the Malay Peninsula (99155, 101349). Exchange.
- BOTANIC GARDENS**, Sydney, Australia: 300 plants from Australia (97400, 97996). Exchange.
- BOTANICAL GARDEN AND MUSEUM**, University of Cluj, Cluj, Rumania: 400 plants from Rumania, centuries 2, 4, 5, 6, Flora Romaniaae Exsiccata (99559, exchange).
- BOTANISCHER GARTEN UND MUSEUM**, Berlin-Dahlem, Germany (through Dr. I. Urban): 6 photographs of plants (97672, 97692, 97780); (through Prof. H. Harms) 5 photographs and 2 plants (99172, 100171), plant (100172); 2 plants and 2 photographs of plants

BOTANISCHER GARTEN UND MUSEUM—Continued.

- (101121); 2 plants from Peru (102015). Exchange.
- BOTANISCHES INSTITUT, Halle, Germany:** Fragmentary specimen of plant (100574, exchange).
- BOWEN, N. L., Washington, D. C.:** Specimen of mullite-bearing rock from the Island of Mull (98725).
- BOX, HAROLD E., Tucuman, Argentina;** 5 flies from Argentina (101325, exchange).
- BRABHAM, OTIS, Allendale, S. C.:** Part of a tree root in the form of the letter "A" for use in the magic medicine exhibit (99303).
- BRADY, MAURICE K., Washington, D. C.:** 62 salamanders from George Washington Spring, one-half mile south of Mount Vernon grounds, Va.; 11 toads from Hog Island, Va.; and an axolotl from Mexico City, Mexico (99759).
- BRALY, N. B., Pasadena, Calif.:** Specimen of vanadinite from the Ahumada mine, Los Lamentos, Chihuahua, Mexico (99175).
- BRANDRETH, COURTENAY, Ossining, N. Y. (through Dr. A. K. Fisher):** Apparatus formerly used in capturing passenger pigeons (100939).
- BRANDT, Lieut. Commander G. E., U. S. Navy, New York City:** 2 crabs (100499).
- BRANNON, C. H. (See under North Carolina College of Agriculture.)**
- BRAY SCREEN PRODUCTS (INC.), New York City:** 13 strip films on health subjects for use in the automatic delinescope, to supplement exhibits of the "Hall of Health" (100226).
- BRENNAN, W. IRVIN. (See under Times-Mirror Printing and Binding House.)**
- BRENT, Mrs. AGNES KENNETT, Ferguson, Mo. (through the Missouri Historical Society, St. Louis, Mo., by Mrs. N. H. Beauregard):** Silk flag presented by ladies of Nashville to the Nashville Battalion during the Creek War, 1813 (100522).
- BREUNING, Dr. S., Vienna, Austria:** 2 beetles, cotypes of species; 28 beetles (96687; 99541). Exchange.
- BREWINGTON, Dr. MARGARET C., Albuquerque, N. Mex. (through Dr. Riley D. Moore, Washington, D. C.):** 6 specimens and 5 photographs concerning the early history of osteopathy, for addition to the osteopathic exhibit (99082).
- BREYER, Messrs. ADOLPHO and ALBERTO, Buenos Aires, Argentina (through Raymond C. Shannon):** 114 reptiles, 6 amphibians, 5 fishes, 2 mammals, 1 spider, a grasshopper, and a leech from Argentina (99332).
- BRIDWELL, J. C., Barcroft, Va.:** Collection of miscellaneous insects, approximately 243 specimens of marine invertebrates, about 10,000 specimens of mollusks and a fetish or charm, collected by the donor in India (98064).
- BRIGNOLES BOTANIC STATION, Brignoles, France (through Dr. R. Salgues, director):** 7 packets of seeds (100453, exchange).
- BRIMLEY, C. S., Raleigh, N. C.:** 2 type specimens of salamanders (100298, exchange).
- BRINKMAN, A. H., Craigmyle, Alberta, Canada:** 153 plants from Canada (98429, 99379).
- BRITISH GOVERNMENT:**
British Museum (Natural History), London, England: 1,167 plants and a snake from Siam (98000, 100555, exchange); (through Dr. James Waterston); 30 specimens of determined sawflies representing 7 species of 2 genera (100010, exchange); skin of a thrush from Inaccessible Island 100467). (See also under Prof. T. D. A. Cockerell.)
Royal Botanic Gardens, Kew, Surrey, England: 9 fragments of type specimens of plants (94586); 305 specimens of South American plants collected by F. C. Lehmann (100610); 3 fragmentary specimens of plants (101071). Exchange.

- BRITTON, Mrs. ALEXANDER, New York City: 2 gilt coat buttons owned by Henry Clay (87097).
- BROGAN, PHIL F., Bend, Oreg.: Skull, lower jaws, and other fragmentary remains of extinct ruminants from the Oligocene of Crook County, Oreg. (97112); lower jaw with teeth of an extinct ruminant from the John Day beds of Oregon (99472).
- BROHARD, JEROME I., Bridgeport, W. Va. (through Dr. N. A. Cobb): 4 isopods taken from a well at Bridgeport, W. Va. (100756).
- BROWER, A. E., Willard, Mo.: Butterfly (99741).
- BROWN, BARNUM. (See under American Museum of Natural History, New York City.)
- BROWN, BEDFORD, Washington, D. C.: Pair of gold and jeweled earrings owned by Rebecca Madison, niece of President James Madison (99766, loan).
- BROWN, D. A., Moffetts, Wash.: Coptic rosary (100207); an Abyssinian rosary (100441).
- BROWN, Mrs. FLORENCE BRADSHAW, Provincetown, Mass. (See under Harold H. Brown.)
- BROWN, GLENN MADISON, Washington, D. C.: Silver spoon and silver fork made in France and owned by President James Madison (99767, loan).
- BROWN, Harold H., Provincetown, Mass.: 54 wood-block prints in black and white and in color, 44 by Harold H. Brown and 10 by Mrs. Florence Bradshaw Brown, for special exhibition from November 28, 1927, to January 2, 1928 (99275, loan).
- BROWN, Capt. HARRY, Santo Domingo, Dominican Republic: Skin of rhinoceros iguana (101361).
- BROWN, Miss MARY J., Norman, Okla.: 4 specimens of fly larvae (99535).
- BROWN UNIVERSITY, Providence, R. I.: Small collection of Carboniferous plants from Rhode Island (100569, exchange).
- BROWN, W. L., Washington, D. C.: Skull of a young black bear from Maine (97997). (See also under Beach African Expedition.)
- BROWNE, Dr. OWENS HAND, Baltimore, Md.: 19 specimens for the Loeb Collection of Chemical Types (101989).
- BRUES, Prof. C. T., Boston, Mass.: 7 beetles, all paratypes of a new species described by P. J. Darlington (100576).
- BRYANT, OWEN, Banff, Alberta, Canada: 29 salamanders, 2 frogs, and 2 young toads from Banff (99771).
- BRYANT, R. W., Kingston, Jamaica: 7,000 specimens of mollusks, being part of the duplicates of the Vendryes Collection (97965).
- BUCHER, WILLIAM F., Washington, D. C.: Photograph of an Andaman redwood tree (98851); Brazilian rosewood panel and frame made by the donor (100438); panel and frame of Macassar ebony (101342).
- BULLOCK, Prof. D. S., Angol, Chile: 50 moths and butterflies from Chile (98294).
- BUNKER, C. D. (See under Dix Teachenor, and Kansas, University of.)
- BUNNELL, Dr. CHARLES E. (See under Alaska Agricultural College and School of Mines.)
- BURDETT, Mrs. J. S., Silver Spring, Md.: Bird—yellow-headed amazon (98702).
- BURGESS, A. F. (See under Agriculture, Department of, Bureau of Entomology.)
- BURKE, C. W., Washington, D. C.: Beetle from Clarendon, Va. (100606).
- BURKENROAD, MARTIN, New Orleans, La.: 2 insects (98495).
- BURRILL, Prof. A. C., Jefferson City, Mo.: 3403 insects, principally Orthoptera (97895).
- BURT, CHARLES E., Ann Arbor, Mich.: 16 amphibians and 25 reptiles (98433).

BUSH-BROWN, Mrs. H. K., Washington, D. C.: Portrait of J. P. Lesley, geologist, painted by M. Lesley Bush-Brown (97616).

BUSHNELL, D. I., Washington, D. C.: Ancient stone mortar from Browns Cove, about 15 miles west of Charlottesville, Va. (97690); lard-oil burning pressure lamp of tin (98738). (See also under Francis L. Berkeley.)

BUTLER, Capt. C. S. (M. C.), U. S. Navy. (See under Navy Department, U. S. Naval Medical School.)

BUTLER, D. C., Chefoo, China: One each of the 1, 4, and 10 cent stamps recently put on the market in the provinces of Shantung, Chihli, and the Three Eastern Provinces of Manchuria to commemorate the assumption of the post of Generalissimo in Peking by Chang Tso-Lin (101503).

CALDERON, Dr. SALVADOR. (See under Salvador, Government of, Direccion General de Agricultura.)

CALIFORNIA ACADEMY OF SCIENCES, San Francisco, Calif. (through Miss Alice Eastwood): 4 plants (Cacti); fossil crab (paratype); 2 beetles, paratypes of a species (98451, 98504, 99549); 118 plants from the Tres Marias Islands, Mexico; 140 plants from Lower California (98914, 99144, exchange).

CALIFORNIA, UNIVERSITY OF, Berkeley, Calif. (through Prof. E. O. Essig): 11 specimens of Hymenoptera, a fly, small collection of beetles, and 7 insects (95543, 98203, 100500, 101551); (through Dr. C. A. Kofoid): isopod and fragments of another from Potter Creek Cave, Shasta County, Calif. (99062); 43 specimens of Cambrian fossils from southern California, 24 of which are types (100899); 9 flies from California (101384).

College of Agriculture, Riverside, Calif.: 3 flies (99337).

CANADIAN GOVERNMENT:

Department of Agriculture, Entomological Branch, Ottawa, Canada (through C. H. Curran): 2

CANADIAN GOVERNMENT—Contd.

Department of Agriculture—Con.

species of flies; 2 flies (paratypes); 8 specimens of Microlepidoptera (all paratypes) (96882, 99340, 99486).

Department of Mines, Geological Survey:

3 mineral specimens—lyndochite, ellsworthite, and thucholite (94643, exchange); (through Frits Johansen) 11 specimens of crustaceans from Canada (100731).

CAREY, Capt. CHARLES, Washington, D. C.: Uniform of Captain, Ordnance Department, worn during the period of the World War, and gilt and enamel collar insignia of various units of the United States Army (27 specimens) (99550).

CARNEGIE INSTITUTE OF TECHNOLOGY, The Laboratory Press, Pittsburgh, Pa.: 17 examples of fine letterpress printing done during the year 1926–27 at the Laboratory Press (97603); an example of fine book making, entitled "A Documentary account of the beginnings of the Laboratory Press," by Porter Garnett, 1927 (98858); 11 examples of fine letterpress printing (101887).

CARNEGIE INSTITUTION OF WASHINGTON, Washington, D. C. (through Dr. David White): 2 specimens of fossil insect wings collected by Doctor White in Grand Canyon National Park, Ariz. (98174); 12 colored plates from Dr. H. L. Conard's book entitled "The Waterlilies" (100493).

CARNEGIE MUSEUM, Pittsburgh, Pa.: 4 bird skins, representing 2 species of a genus new to the Museum collections (98309); an Aplomado falcon (100231, exchange).

CARR, EDWIN, Shanghai, China: Chinese silver dollar issued in 1927 (99022).

CASANOWICZ, ESTATE OF DR. I. M.: 3 bronze commemorative medals (99920) (through Munsey Trust Co., executors); 2 Chinese religious carvings in soapstone (100945).

- CASCADDEN, EARLE S., Lapel, Ind.: 6 specimens of moth larvæ collected in Indiana (101853).
- CASEY, Miss SOPHIE P., Washington, D. C.: an enamel cup commemorating the Diamond Jubilee of Queen Victoria, 1897 (100215).
- CASSINO, S. E., Salem, Mass.: 45 moths and butterflies from Honduras and Cameroons (100575); (through Dr. H. G. Dyar) 235 moths collected by O. C. Poling in the White Mountains, Ariz. (101118).
- CATE, CHARLES T., Charlottesville, Va.: 250 specimens of fossil invertebrates from the Cambrian and Middle Devonian of southwestern Virginia (97402).
- CAUM, EDWARD L., Honolulu, Hawaii: 2 chicks and 16 eggs of the Laysan rail (101567).
- CAYEUX, Prof. L., Paris, France: 32 specimens illustrating the iron ores of Lorraine, France (98250).
- CHAMBERLAIN, Prof. CHARLES J., Chicago, Ill.: 2 specimens of ferns (96607); fern from Australia (101985).
- CHAMBERLAIN, E. B. (See under Charleston Museum, The.)
- CHAMBERLAIN FUND, FRANCES LEA, Smithsonian Institution: Beads of rhodonite and a carved pendant of amber (98855); 5 carved objects of rose quartz, agate, malachite, aventurine quartz, and rhodonite (99036); 7 specimens of gem minerals (99328); 100 small cut sapphires from Montana, a string of malachite beads, and a string of jasper beads (100063); cut stone of Mexican opal (100064); blue-green tourmaline, weighing 20.35 carats, from Madagascar (100580); 24 cut gems of spinel (100581); brown diamond weighing 1.4 carats (100777); a cut gem of citrine quartz weighing 264.75 carats (101296); a cut gem of alexandrite from Ceylon weighing 65.7 carats (101298); 3,671 lots of specimens of Jamaican land shells collected by C. R. Orcutt (101546).
- CHAMBERS, B. L., Washington, D. C.: Pair of otoliths from the head of a small-mouth black bass (101552).
- CHAMBERS, FRANK V., Philadelphia, Pa.: 3 cameras of very early manufacture, 2 lenses, and a printing frame (97119); 3 stereoscopic transparencies (98859). (See also under Vincent Harris and Miss Mary E. Truman.)
- CHAMBERS, Miss MAUDE B., Harpers Ferry, W. Va.: Screech owl from West Virginia (100600).
- CHAMBERS, MAX, Preston, Md.: Pair of colonial ice skates, and an old English sextant made by Spencer Browning & Co., England (101128).
- CHANDA, R. (See under Indian Museum, Calcutta, India.)
- CHAPIN, Dr. E. A. (See under A. B. Wolcott.)
- CHAPMAN, Rev. JOHN W., Anvik, Alaska: 6 ethnological specimens from Anvik, Alaska, and vicinity; also 2 dictaphone records of numerous Tinne Indian ceremonial songs (99724).
- CHAPMAN, Mrs. JOHN W., Anvik, Alaska: Decorated birch bark basket (99725).
- CHARLESTON MUSEUM, THE, Charleston, S. C. (through E. B. Chamberlain): 10 salamanders from South Carolina (99315).
- CHASE, Dr. W. H. (See under Alaska Game Commission.)
- CHASE, Dr. WILL, Cordova, Alaska: 2 Eskimo skulls from Alaska (99552).
- CHELF, S. D., Follett, Tex.: Larva of a moth (98877).
- CHELLSON, H. C., Schenectady, N. Y.: Small collection of silver ores from mine at Sabinal, Chihuahua, Mexico (101122).
- CHILCOT, E. F., Woodward, Okla. (through Dr. O. P. Hay): Lower left molar with attached portion of jaw of a fossil elephant (100336).
- CHURCHILL, J. R., Dorchester, Mass.: 155 plants (97461).

- CLARK, B. PRESTON**, Boston, Mass.: 57 moths from East Africa (97669); 3 butterflies (99935); 210 specimens of Sphingidae (hawk-moths), almost all of which are new to the Museum collection; also 30 moths belonging to the family Sphingidae (100435; 101584); 37 butterflies and moths (100774); 143 hawk-moths, mostly new to the Museum collections (101145).
- CLARK, ROBERT STERLING**, New York City: Large collection of animals collected by Arthur deC. Sowerby during the past 3 years in various parts of China, comprising 329 marine invertebrates, collection of reptiles, amphibians, fishes, and other aquatic vertebrates, and a collection of mammal skins and skulls (97063).
- CLARK, ROLAND**, Peconic, N. Y.: 15 etchings and dry points, the work of the lender, for special exhibition from October 31 to November 26, 1927 (98703, loan).
- CLAUDE, JOSEPH, Rev. BROTHER**, Temuco, Chile: 63 plants from Chile (100041).
- CLAYTON, Dr. CHARLES F.**, Balkan, Ky.: Scorpion (97087).
- CLEMENS, BROTHER.** (See under Colegio de la Salle, La Paz, Bolivia.)
- CLEMENT, JOHN W.**, Washington, D. C.: Panel made by the silk stencil method of printing, printed in 2 colors, the work of Adler-Jones Co. (97604).
- CLEMENT, Rev. BROTHER**, Santiago de Cuba, Cuba: 46 specimens of ferns from Cuba (98544, 101114).
- CLEMENTS, J. MORGAN**, Papeete, Tahiti, Society Islands: Collection of miscellaneous insects from the Society Islands (97799).
- CLINTON, H. G.**, Manhattan, Nev.: Specimen of the mineral benjaminite from the Outlaw Mine, Manhattan, Nev. (99029); 2 specimens of variscite and francolite, also from Manhattan (100175).
- CLOKEY, IRA W.**, South Pasadena, Calif.: 4 specimens of ferns from Colorado (97367).
- CLORE, JAMES W.**, Mount Ida, Va.: Double-barreled shotgun made by Joseph Golcher about 1860 (99743).
- COBB, Dr. N. A.** (See under Jerome I. Brohard.)
- COCHRAN, Miss DORIS M.**, Washington, D. C.: 10 specimens of fishes (97776, 98265); 2 common toads and 6 firetoads from Germany, snake, tree-lizard, and rhinoceros iguana from Haiti (98880); specimen of paradise fish (101553).
- COCKERELL, Prof. T. D. A.**, Boulder, Colo.: 105 specimens of miscellaneous Siberian insects, including 18 determined specimens represented by 15 species of the Orders Hymenoptera, Heteroptera, Coleoptera, and Orthoptera (98985); 29 amphipods, a fish, and 2 leeches, all from Lake Baikal (99134); (through British Museum (Natural History), London, England): 22 specimens of fragmentary fossil remains from Siberia (100347); 1,291 undetermined miscellaneous insects collected in Russia (from Irkutsk to Tashkent), and in Siberia (Lake Baikal region) (100807); approximately 60 plants from Siam (101060). (See also under Prof. Nasonov.)
- COKER, Dr. R. E.** (See under Alleghany School of Natural History.)
- COKER, Prof. W. C.** (See under North Carolina, University of.)
- COLE, Miss GRACE M.**, Sacramento, Calif.: Plant from southern California (101346).
- COLEGIO BIFFI**, Barranquilla, Colombia (through Rev. Brother Elias): 132 plants from Colombia (97414, 97898, 98001).
- COLEGIO DE LA SALLE**, La Paz, Bolivia (through Brother Clemens): 113 specimens of insects from Bolivia (100312).
- COLEGIO PRESBITERIANO**, Sancti Spiritus, Cuba: Small collection of fossil echinoids from "Arroyo Blanco" Municipal District of Jaticbonico, Camaguey Province, Cuba (100013, exchange).

COLIZZA, Dr. CORRADO, Agraria, Portici, Italy: 4 specimens of insects (96762).

COLLECTORS CLUB, City Hall Station, New York City: Bronze replica of the Collectors Club medal (100254).

COLLOM, Mrs. W. B., Payson, Ariz.: Plant (97600); 5 plants from Arizona (98278, 101304, 101352); 7 plants from Arizona (97911, exchange).

COLORADO MUSEUM OF NATURAL HISTORY, Denver, Colo.: 5 specimens of fossil bird bones from the Oligocene of Weld County, Colo., described by Dr. A. Wetmore (91505, deposit).

COMMERCE, DEPARTMENT OF:

Bureau of Fisheries: 12 specimens of marine invertebrates from Southeastern Alaska, collected by F. W. Hynes, United States Bureau of Fisheries, Wrangell, Alaska (93580); 97 specimens of shrimp collected in southeastern Alaska (97072); 2 parasitic isopods from mackerel which were collected off the coast of New Jersey, May, 1926 (97447); 134 fishes from Alaska and various other localities in the United States; also a turtle (97667); 12 specimens of freshwater medusae collected by C. J. Lauter, Chief Chemist, at the filtration plant of the city water works, Washington, D. C. (97696); 3 crabs from Virginia (97945); blue crab with abnormal claw taken at Rock Point, Charles County, Md., September 5, 1927, by A. A. Dean (98189); 50 specimens of jelly fish taken from Indian Lake, Ky., August 21, 1927 (98244); package of seeds of poppy from the Pribilof Islands (99327); approximately 139 specimens of marine invertebrates, 2 salamanders, and 12 turtles from Greenwood, Miss., and a vial containing 11 larval

COMMERCE, DEPT. OF—Continued.

Bureau of Fisheries—Continued.

salamanders from Beaufort, N. C., collected by Hildebrand and Hatzel (99378); (through S. F. Hildebrand): 8 parasitic copepods from gills of an ocean sunfish (99591); 2 specimens of phyllopoets from Florida (100057); shell collected at Bryant's Point, Severn River, Va. (100220); approximately 10,000 fishes, 4,400 specimens of marine invertebrates, and 2 cephalopods collected at the Philippine Islands during the *Albatross* Philippine Expedition, 1907-1909 (100455); 118 specimens of fishes from Panama, collected by F. J. Foster (100456); 26 specimens, 3 species, of marine shells from Texas (100559); 7 specimens of shrimps from cod stomachs, taken off "No Man's Land," near Nantucket, Mass., February, 1928 (100566); collection of marine invertebrates, echinoderms, mollusks, and fishes, collected off Gloucester, Mass., by Clarence Birdseye (101127); 699 specimens of crustaceans collected by Harvey C. McMillin on the Pacific coast (101501); 3 lots of alcyonarians, together with 9 slides, collected by the *Albatross* off the west coast of Mexico and Panama in 1891 (101758).

(See also under Russell Willcox.)

National Committee on Wood Utilization (through Mr. A. H. Oxholm): 95 specimens and 6 photographs showing recent wood utilization methods (101363, loan).

CONCHOLOGY CLUB OF SOUTHERN CALIFORNIA, Los Angeles, Calif.: 25 specimens, 16 species of marine shells, and 5 specimens of mollusks, all from Ecuador (100052, 100436).

- CONDIT, D. DALE, Chevy Chase, D. C. (through Dr. C. Wythe Cooke): Fossil tooth and a collection of nummulites from Portuguese East Africa (101381).
- CONYERS, TOM, Fort Myers, Fla. (through George Hyatt): Gold disk found in a dirt mound at Fort Simon Drum, about 16 miles east of Immokalee, Fla., on the property of the donor (101163).
- COOK, Prof. E. FULLERTON, and Prof. CHARLES H. LA WALL, Philadelphia, Pa.: Copy of the seventh edition of Remington's Practice of Pharmacy, by the donors, for inclusion in the historical pharmaceutical collection (99351).
- COOK, ROBERT A. (See under E. L. Crandall.)
- COOKE, Dr. C. WYTHE. (See under D. Dale Condit.)
- COOPER, Lieut. Commander LOWELL, United States Navy, Washington, D. C.: Feather robe made by the Maoris of New Zealand (99475).
- CORN PRODUCTS REFINING CO., New York City: 36 specimens of foods and industrial products derived from ordinary yellow field corn, including oils, starches, sugars, and gums (101746).
- CORNWALL, I. E., Victoria, B. C., Canada: Fossil barnacle from the Oligocene of Vancouver Island, British Columbia (99477).
- COUGHTRY, W. J. (See under Delaware & Hudson Co.)
- COVILLE, Dr. FREDERICK V., Washington, D. C.: 15 plants from New York and 1 from the District of Columbia (98826, 99561). (See also under Agriculture, Department of, Forest Service, and Bureau of Plant Industry, Leslie N. Gooding and G. L. Snider.)
- COWDON, HARRY F., Saltdale, Calif.: Adult male human skeleton from a mound near Petrified Forest (98187).
- COWLES, Dr. R. P., Baltimore, Md.: Specimen of Muhlenberg turtle taken at Priests Bridge, on the Patuxent River, Md. (101588).
- COYOCUTENA AGRICULTURAL COLLEGE, Comayagua, Honduras (through C. R. Mahaffey): Fossil shell, ring of Mexican jade, and a handle from a clay dish found near Jamalteca, Department of Comayagua, Honduras (98814).
- CRAMPTON, Dr. G. C., Amherst, Mass.: Parasitic copepod, probably from Woods Hole, Mass., collected by the donor (100747).
- CRANDALL, E. L., Washington, D. C., and Robert A. Cook, Washington, D. C.: 2 lizards, a frog, and a scorpion from Yucatan (97386).
- CRAWFORD, J. C., Black Mountain, N. C.: 4 plants from North Carolina (101854).
(See also under North Carolina Department of Agriculture.)
- CRAWFORD, WILLIAM P., Bisbee, Ariz.: Examples of the type specimens of the mineral weissite (100553).
- CROCKER, HENRY, Chester, Vt.: Approximately 20 Tertiary shells and 5 recent marine shells from Auburn, Ala.; also 3 specimens of actinolite from Chester, Vt. (99996, 100365). Exchange.
- CROMPTON, GEORGE and RANDOLPH, Worcester, Mass.: Model of the first open-shed loom manufactured extensively in America, United States Patent No. 20044, issued April 27, 1858, to George Crompton, father of the donors (101586).
- CROMPTON & KNOWLES LOOM WORKS, Worcester, Mass.: Automatic 6-color gingham loom No. 11857 (99341).
- CROSBY, OSCAR T., Washington, D. C.: 40 ethnological specimens from southwest Africa (99721).
- CUNNINGHAM, Mrs. ANDREW W., Atlantic City, N. J.: Piece of wood from the carriage owned by President Abraham Lincoln during the period of the Civil War (98870).
- CURRAN, C. H. (See under Canadian Government, Department of Agriculture, entomological branch.)

- CURRY, Dr. D. P., Ancon, Canal Zone (through Dr. H. G. Dyar): 3 specimens of grass from the Canal Zone (101320).
- CURTISS AEROPLANE & MOTOR CO., INC., Garden City, N. Y.: Curtiss pusher aeroplane of the type used in 1909-1914, equipped with the engine which won the Gordon-Bennett trophy at Rheims, France, in 1909 (99471).
- CUSHMAN, Dr. JOSEPH A., Sharon, Mass.: Collection of washings with micro-fossils from classic localities in Europe (98829).
- CZERNY, Father LEANDER, Kremsmunster, Upper Austria: 13 specimens of flies (99124, exchange).
- DAHLGREN, CHARLES W., Oak Park, Ill.: 50 etchings and dry points for special exhibition from February 27 to March 25, 1928 (100179, loan); dry-point etching, with aquatint in sky, entitled "Down to the Valley," by the donor (100815).
- DALY, MARCUS. (See under Beach African Expedition.)
- DANFORTH, Prof. STUART T. (See under Porto Rico, University of.)
- DARBY, Rev. W. L. (See under Federal Council of the Churches of Christ in America.)
- DAVIS, ARTHUR G., London, England: Washings, rich in mollusks and micro-organisms, from the Eocene, Barton Cliffs, England (98510); approximately 100 specimens of English Cretaceous bryozoans and sponges (98990, exchange).
- DAVIS, HARRY T., Raleigh, N. C.: Examples of pyrophyllite from Staley, Randolph County, N. C. (98543).
- DAVY, Dr. J. BURTT. (See under Oxford, University of, Imperial Forestry Institute.)
- DAYTON, W. A. (See under Agriculture, Department of, Forest Service.)
- DEAM, CHARLES C., Bluffton, Ind.: Plant (97356); 33 plants from Indiana (98041, 99138).
- DEANE, RUTHVEN, Chicago, Ill.: Collection of photographs of scientists (100036).
- DELAWARE & HUDSON CO., THE, New York City (through W. J. Coughtry): Photographic enlargement of locomotive No. 1401, "John B. Jervis," a freight locomotive designed in 1927 by the Delaware & Hudson Co., the outstanding feature of which is a water-tube firebox boiler to carry 400 pounds steam pressure (99569).
- DELON, Rev. PHILIP J., S. J., Holy Cross, Alaska: 3 Eskimo skulls found at Kashunak village, Alaska (99599).
- DENLEY, C. F., Rockville, Md.: Specimen of hondo copper pheasant, white peacock, and 4 eggs of Araucanian fowl (99756, 101064, 100177).
- DENNISON MANUFACTURING CO., Framingham, Mass.: 4 "Crystal Trees," decorative objects for household ornamentation made of colored sealing wax to represent a coral tree, wild rose tree, red pepper tree, and a wisteria vine (100952).
- DERJUGIN, Prof. Dr. K., Leningrad, U. S. S. R.: 41 specimens, 32 species, including 13 types of new species of marine mollusks from the Gulf of Peter the Great, described by Doctor Bartsch (98243).
- DEUTSCHES ENTOMOLOGISCHES MUSEUM, Berlin-Dahlem, Germany (through Dr. Walther Horn): 15 Orthoptera, all cotypes except one specimen (97318); 500 specimens of miscellaneous insects, representing 250 species, including 45 paratypes (99765). Exchange.
- DICKEY, DONALD R., Pasadena, Calif.: 19 frogs from Salvador (98029).
- DICKINS, Mrs. F. W., Washington, D. C.: China compote used in the White House during the administration of President Abraham Lincoln (99343); 7 specimens of Lincoln china (100578). Loan.
- DIETZ, GOULD, Omaha, Nebr.: Curtiss aircraft engine of 1908, used in the Baldwin dirigible (99400).
- DINWIDDIE, Mrs. HOWARD, Baltimore, Md.: Blowgun and 3 bundles of poisoned darts from the Nape

- DINWIDDIE, Mrs. HOWARD—Contd.**
River region of South America (98539).
- DIRECCION DE PASEOS PUBLICOS, Montevideo, Uruguay:** 2 drawings of South American Cacti (100021); plant (101120).
- DIXON, H. N., Northampton, England:** 78 specimens of mosses from India (100496, exchange).
- DODGE, ELIZABETH.** (See under Mary Danforth Dodge.)
- DODGE, Dr. HENRY N.** (See under Mary Danforth Dodge.)
- DODGE, MARY DANFORTH, and ELIZABETH DODGE, Morristown, N. J.** (through Dr. Henry N. Dodge): 24 engravings by Moseley Isaac Danforth (1800–1862), and an engraving of Lafayette by Leroux, 1824 (97421).
- DODGE & OLCOTT CO., Bayonne, N. J.:** 32 specimens of essential oils used in medicine (99325).
- DONALDSON, C. S., Avon Park, Fla.:** 4 specimens of living cacti (102014).
- DOUBLEDAY, ARNOLD, Chicago, Ill.:** Tapir skull from Honduras (102019).
- DOWNER, The Misses, Lakewood, N. J.:** Model of a Sicilian donkey cart (101299).
- DOYLE, Miss A. M., Washington, D. C.:** Portrait on leather (101536).
- DRAKE PROCESS (INC.), THE, Cleveland, Ohio:** 28 wood pulp and 4 German peat moss articles made by the Drake process (98170): 3 single-service milk bottles with sections cut away to show deposition of wood pulp of which they are made (100439).
- DUBOST, JEAN, Vaux (Rhône), France:** 8 specimens of minerals from the mountains of the Cevennes, France (98119).
- DUNAGAN, ALICE, Ammas, N. Mex.:** Beetle collected in New Mexico (99323).
- DUNBAR, Mrs. U. S. J., Washington, D. C.:** 3 plaster busts of famous Indians and 3 items of Indian ethnologica (99748).
- DUNHAM, H. F., New York City:** Small billet of beefwood from Florida (99112).
- DUNN, E. B., Ottawa, Kans.:** 3 specimens of labradorite from Newfoundland (98746, exchange).
- DU PONT RAYON CO. (INC.), Buffalo, N. Y.:** 6 specimens illustrating stages in the manufacture of viscose rayon (101164).
- DU PONT VISCOLOID CO. (INC.), Arlington, N. J.:** 125 specimens of small finished articles made of pyralin (or viscoloid), and 3 sheets of the same material, such as are furnished by the company for further manufacture by outside firms (99948).
- DUTTON, D. LEWIS, Brandon, Vt.:** 56 plants (99779).
- DUTTON, E. P., & Co., New York City:** Volume 4 of "Modes and Manners of the Nineteenth Century," by Dr. Oskar Fischel and Max Von Boehn, specially bound (101747).
- DUVAL, HUGH H., Bastrop, Tex.:** Specimen of grass, and a living specimen of plant, both from Texas (99278, 101548).
- DYAR, Dr. H. G.** (See under S. E. Cassino, Dr. D. P. Curry, and Dr. M. Nunez-Tovar.)
- DYAR, WALLACE, Washington, D. C.:** 3 European starlings (99571).
- DYER, Hon. FRED E.** (See under Hon. Oscar E. Bland.)
- DYER, HENRY E., East Hampton, Long Island, N. Y.:** Brittle star fish (99317).
- EARLE, CHARLES T., Bradenton, Fla.:** Marine annelid, head of a water snake, and a water snake, all from Florida (96352, 97797, 98009).
- EAST, C. S.** (See under J. S. C. Boswell.)
- EASTWOOD, Miss ALICE.** (See under California Academy of Sciences.)
- EDDYSTONE CEMENT CO., New York City (through E. R. Wilmer):** Section of original Roman aqueduct built in 80 A. D. between Eiffel and Cologne, Germany (98767).

- EDDY TREE-BREEDING STATION, THE**, Placerville, Calif.: Plant from California (98412).
- EDRINGTON, EMILY H.** (through Benjamin S. Minor, Executor, Washington, D. C.): Oil painting on canvas of "The Abbess" by Camp-huysen (98032, bequest).
- ELIAS, Rev. BROTHER**, Barranquilla, Colombia: 180 plants from Colombia (100345, 101488).
(See also under Colegio Biffi, Barranquilla, Colombia.)
- ENGBERG, Dr. CARL C.**, Lincoln, Nebr.: 30 specimens, 2 species, of land shells from Nebraska and Yellowstone Park (100743).
- ENGLISH, GEORGE L.** (See under Louis Oppenheimer.)
- ERIE CITY IRON WORKS**, Erie, Pa.: Model of a modern water-tube boiler using pulverized coal; high-pressure type, 511 horsepower (99816).
- ESSIG, Prof. E. O.**, Berkeley, Calif.: Approximately 10 specimens of branchipus from California (98256).
(See also under California, University of.)
- EVANS, Victor J.**, Washington, D. C.: 2 specimens of upland goose and 2 trunk skeletons (97404); 6 birds (98285, 99603, 101159).
- EWING, Dr. H. E.**, Washington, D. C.: 5 specimens of crustacea collected by the donor at Great Falls, Va. (92823).
- EWING, SPENCER**, Bloomington, Ill.: One copy of a moving-picture film (25 feet) of an exceptionally large lobster taken at Noank, Conn., July, 1927 (98220).
- EYERDAM, WALTER J.**, Seattle, Wash.: 9 insects, miscellaneous collection of echinoderms, marine invertebrates, and fragments of a box fish (98837); fossil shell from the Miocene horizon (100968).
- FABIAN, DOMINICK**, Portland, Oreg.: Air mail circular transported over the principal air mail routes in the United States from the Pacific to the Atlantic coast and bearing 17 canceled 10-cent air mail stamps (101748).
- FAIRBANKS, DOUGLAS**, Los Angeles, Calif.: One glossy and one white enlarged photograph of the "magic carpet" as portrayed in "The Thief of Bagdag" (101007).
- FARLOW HERBARIUM**, Cambridge, Mass. (through Prof. Roland Thaxter): 23 specimens of algae from Trinidad and Tobago (99024, exchange).
- FEDERAL COUNCIL OF THE CHURCHES OF CHRIST IN AMERICA**, Washington, D. C. (through Rev. W. L. Darby, secretary): "Miss Japan," one of the 58 dolls sent to the United States from Japan in 1927 as a token of good will, with various accessories (100437, loan).
- FEJÉRVÁRY, Baron G. J. DE** (See under Hungarian National Museum.)
- FELIPPONE, Dr. FLORENTINO**, Montevideo, Uruguay: 3 specimens, 2 species, of shells from Argentina; 5 insects, a frog, 5 lizards, 2 snakes, 1 caiman, and 53 specimens of marine invertebrates from Uruguay (97378); 46 land, fresh water, and marine shells from Uruguay, Argentina, and Cape Colony (97382); 33 specimens, 9 species, of land and marine shells from Uruguay and Argentina (99178); 7 specimens, 5 species, of marine and fresh-water shells from Uruguay, also a crayfish collected by the donor (99763); 23 specimens, 13 species, of land, fresh water, and marine shells from Uruguay; also 3 crustaceans, 39 insects, and 2 lizards (100504); 9 specimens, 5 species, of land, fresh water, and marine shells from Uruguay; 7 birds, 3 snakes, 1 bat, 7 insects, and a starfish (100816); 17 birds and 5 insects from Uruguay (101572).
- FELT & TARRANT MANUFACTURING CO.**, Chicago, Ill.: A comptometer, Model J, and a glass sectioned model of the same incorporating modern improvements in this type of device (98776).

- FERGUSON, W. C.**, Hempstead, Long Island, N. Y.: 4 plants from New York (99023).
- FERRIS, J. L. G.**, Philadelphia, Pa.: Approximately 40 items of costumes from Spain, Morocco, Turkey, and other localities (100692).
- FERRISS, J. F.**, Kansas City, Mo.: English china platter of the early part of the 19th century (97155).
- FESSENDEN, Miss L. L.**, Washington, D. C.: Specimen of Tovi parakeet (99949).
- FIELD MUSEUM OF NATURAL HISTORY**, Chicago, Ill.: 2 specimens of ferns from Bolivia; 5 fragmentary specimens of cacti from Peru, A. Weberbauer, collector; 3 skins of a genus of pigeons new to the Museum collections; 26 plants from Peru; (through Dr. S. F. Blake): 10 plants from South America (86977; 97545; 101356; 101514; 101896); skin of a bird representing a genus new to the Museum collections (99469). Exchange.
- FIELD, OSGOOD.** (See under Beach African expedition.)
- FILINGER, GEORGE A.** (See under Ohio Agricultural Experiment Station, Department of Entomology.)
- FIRESTONE, Dr. CHARLES**, Kananak, Alaska: Brain of an Eskimo man; brain of an adult Tlingit Indian; brain of a full-blooded Haida Indian; brain of a 10-year-old Tlingit Indian boy (97883; 100070; 100785; 101839).
- FIRMIN, Rev. Brother GEMEL**, Quito, Ecuador: 469 plants from Ecuador (96583, 98253, 99761, 100454, 101769).
- FISCHER, PH.**, Buffalo, N. Y.: A peculiar moth, new to the Museum collections, from Buffalo, N. Y. (97882).
- FISHER, Dr. A. K.** (See under Courtenay Brandreth.)
- FISHER, GEORGE L.**, Houston, Tex.: 95 plants from Texas (98276).
- FISHER, W. S.** (See under Agriculture Department of, Bureau of Entomology.)
- FLEGAL, H. F.**, Morrisdale, Pa. (through Thomas G. McCausland): Specimen of a fossil plant from Cunnard Slope Mine No. 1, near Morrisdale (98299).
- FLORIDA STATE MUSEUM**, Gainesville, Fla. (through T. Van Hynning, Director): 126 fishes from Florida (95465, 97798).
- FLORIDA, UNIVERSITY OF**, Agricultural Experiment Station, Gainesville, Fla. (through J. R. Watson): 13 slides containing 36 specimens of thrips, 8 (slides) of which are paratypes (100062).
- FOERSTE, Dr. A. F.**, Dayton, Ohio: Portion of the donor's private collection of American Paleozoic invertebrate fossils (98493).
- FOLGER, L. M.** (See under Mrs. Martha Morrison Sinks.)
- FORBES LITHOGRAPH MANUFACTURING CO.**, Boston, Mass.: 4 photo-mechanical lithographs in color, namely, "G. Washington" "Franklin," "Th. Jefferson," and "A. Hamilton" (101868).
- FORMOSA, JAPAN**, Department of Forestry, Government Research Institute: 154 plants from Formosa (100032, exchange).
- FORRESTER, Mrs. FLORENCE CAMPBELL**, Washington, D. C.: Examples of native gold and silver (98530).
- FORSYTH, THOMAS S.**, Washington, D. C.: Diplomatic uniform worn in 1828 by William Pitt Preble and military uniform worn in 1856 by Capt. Frederick Forsyth, Maine Militia (8 specimens) (96111).
- FRANKE, A.**, Arnstadt, Germany (through Dr. E. O. Ulrich): 40 specimens of Silurian drift bowlders containing ostracods (97401).
- FREEMAN, E. B., jr.**, Atlanta, Ga.: A Waterbury Watch Co. movement of about 1885, made after patents of D. A. Buck, and the first cheap watch called "Waterbury"; also a New England Watch Co. movement, 1888, the successor of the original Waterbury (100322).

- FREEMAN, O. M. (See under Miss Jennie Jones.)
- FRESNO STATE COLLEGE, Fresno, Calif. (through G. E. Macginitie): 2 specimens of beetle larvæ from California (101752).
- FRIC, A. V., Prague-Smichov 148, Czechoslovakia: 2 plants from South America (97653, exchange).
- FROST, Dr. S. W., Arendtsville, Pa.: 4 flies (99263).
- FRUEHAN, Dr. ANGUS GEORGE, Madison, Wis.: 2 specimens for the Loeb Collection of Chemical Types (101888).
- FRUSH, Miss FANNIE B., Glyndon, Md.: Decoration and diploma of the Order of St. Stanislaus awarded in 1857 by Alexander II, Emperor of Russia, to Dr. Charles A. Leas in recognition of services rendered during the Crimean War, 1853-1856 (99983).
- FUKIEN CHRISTIAN UNIVERSITY, Department of Biology, Foochow, China: 57 specimens of Chinese plants, mostly ferns (97639, exchange); 59 specimens of Chinese ferns (99777).
- FULLER BRUSH CO., Hartford, Conn.: 28 bristle brushes for replacement of obsolete specimens in the collection of brushes presented by the American Brush Association in 1924 (101840).
- FULLER, Mrs. NETTIE, Breedsville, Mich.: 8 specimens of insects (96881); 3 specimens of encysted planarians (flat worms) and 19 specimens of insects (99128); 50 insects (100185).
- FURNESS, Mrs. H. H., -jr., Ardmore, Pa.: A set of double harness, brass mounted with crest, from the estate of the late William Davis Winsor, of Philadelphia, father of the donor (96824).
- GABLE, THOMAS J., and O. E. MORRELL, Grandy, Minn.: 2 small lots of potsherds from Minnesota (100942).
- GABRIEL, CHARLES J., Abbotsford, Victoria, Australia: 18 specimens, 8 species, of land and marine shells from Australia (99035).
- GAHAN, A. B. (See under Agriculture, Department of, Bureau of Entomology.)
- GAIGE, Prof. F. M. (See under Michigan, University of.)
- GALE, HOYT RODNEY, Stanford University, Calif.: 7 specimens of bryozoans from the Tertiary rocks of the Nipomo quadrangle, California (100582).
- GALE, Mrs. MARGARET M., Glendale, Calif.: Photograph of male members of 9 generations of the Morris family and their wives, 1672-1912 (98745).
- GANDER, FRANK F., San Diego, Calif.: 17 amphipods, 2 barnacles, and 1 leech from Balboa Park, Calif., collected by the donor (96620); approximately 54 specimens of crustaceans, 15 amphipods and a crayfish from California (96966, 98520, 100178); approximately 30 amphipods collected by the donor on the Silver Strand Beach south of Coronada, Calif., July, 1927 (97900).
- GARBER, PAUL E., Washington, D. C.: Bronze statuette of the Greek god Hermes (Roman god Mercury) god of commerce and messenger of Olympus (101123).
- GARDNER, Dr. JOHN HALL, Morgantown, W. Va.: 2 specimens for the Loeb Collection of Chemical Types (97849).
- GARRETT, A. O., Salt Lake City, Utah: 3 plants from Utah (98172).
- GATES, Prof. GORDON E., Rangoon, Burma: 19 specimens of earthworms, collected by the donor (98069).
- GATES, Rev. SEBASTIAN, Grenada, British West Indies: 4 ticks, 1 beetle and an isopod; shovel-nosed shrimp and a sea urchin; bat from Grenada and one locust from Port-of-Spain; insect, an immature cockroach (97645, 98512, 100863, 101581).
- GATES, WALTER L., Teaticket, Mass.: Specialized collection of Iowa pre-canceled postage stamps (2,770 specimens) (98302).

GATES, WALTER L.—Continued.

(See also under Precancel Stamp Society.)

GEARHART, The Misses FRANCES H. and MAY, Pasadena, Calif.: 35 block prints by Frances H. Gearhart, and 15 color etchings by May Gearhart, for special exhibition from January 5 to 28, 1928 (99575, loan).

GEDULY, Prof. OLIVER, Budapest, Hungary: 3 lizards (99372).

GENERAL COMMITTEE ON ARMY AND NAVY CHAPLAINS (through Rev. W. S. Abernethy, Chairman, Washington, D. C.): Bronze medal of the type awarded by the General Committee on Army and Navy Chaplains to chaplains of Protestant faith who served in the United States Army or Navy during the World War (98212).

GEST, GUY M., New York City: Nine enlarged (and one original) photographs relating to the first successful commercial electrical railroad, which began operation in Baltimore, Md., in 1885; presented in memory of Thomas C. Robbins, general manager of the Baltimore Union Passenger Railway Co. (99479).

GIBBONS, DANIEL, Brooklyn, N. Y.: Copy of the Philadelphia Herald of January 31, 1889, containing a half tone which was printed from a stereotype on a web perfecting press; photograph of Louis Edward Levy, by Goldensky; photograph of Daniel Gibbons and a half tone of Max Levy, with descriptions of their achievements (98387).

GIFFORD, E. W., San Francisco, Calif.: Plant (100029).

GILKEY, Prof. HELEN M. (See under Oregon State Agricultural College.)

GILLESPIE, J. G., Bethpage, Tenn.: Young mole with nest (96459).

GILLHAM, BERT A., Burlington, Iowa: Approximately 250 specimens of land and fresh-water shells from Iowa (99586).

GILMAN, M. FRENCH, Banning, Calif.: 2 plants from Arizona (101158); 15 specimens of ferns from California and Arizona (101168).

GLASCOCK, ALFRED E., Washington, D. C.: Fossiliferous boulders from the vicinity of Washington, D. C. (98739); potsherds, rejectage from blade manufacture, etc., collected by the donor at Molly Boat Cove, on the Anacostia River, D. C. (101880).

GLATTFORD, Dr. JOHN WILLIAM EDWARD, Chicago, Ill.: A specimen for the Loeb Collection of Chemical Types (101889).

GLEASON, Dr. H. A., New York City: 6 plants from British Guiana (100227).

GLOYD, Prof. HOWARD K., Manhattan, Kans.: 2 narrow-mouthed toads from Bourbon County, Kans. (99514).

GOODING, LESLIE N., Corvallis, Oreg. (through Dr. Frederick V. Coville): Plant from Washington (101147).

GOODLOE, A. E., jr., Chattanooga, Tenn.: 8 insects, including 2 adults, 3 larvae, and 3 pupae (100804).

GORDON, Mrs. CAROLINE M., Takoma Park, Md.: Linen sheet spun and woven in 1823 at Freeport, Me., by Nancy Soule, mother of the donor; 2 yokes of infant dresses, showing hand embroidery, worn by the donor in 1848 at Freeport, Me. (99106).

GOSHAW, GEORGE R., Shishmaref, Seward Peninsula, Alaska: 8 Eskimo skulls and a lower jaw, 4 ivory projectile points, 1 slate projectile point, a wooden spoon, ivory comb, and a bone "repair" for sled (96836).

GOTEBORGS BOTANISKA TRADGÅRD, Goteborg, Sweden: 10 photographs of ferns from Juan Fernandez (100762, exchange).

GOURDON, MAURICE, Nantes, France: Collection of fossil invertebrates from the upper Lutetian, Bois Gouet (Seine Inferieure) (98061); 2 field mice (100187).

GOWDEY, C. C. (See under Jamaican Department of Agriculture.)

GRABHAM, Dr. M., Kingston, Jamaica: 3 insects from Jamaica (mosquito and 2 spiders) (95407).

GRADLE, Dr. HARRY S., Chicago, Ill.: Photographs of Emperor Maximilian and Empress Carlotta of Mexico,

- GRADLE, Dr. HARRY S.**—Continued.
and photographs showing scenes in the life of the Emperor (93048).
- GRAGG, Mrs. HAZZARD, San Luis Obispo, Calif.:** Specimen of fern from California (98171).
- GRAHAM, Rev. DAVID C., Suifu, Szechuan, China:** 9 snakes, 1 lizard, 4 mammals, 21 bird skins and 4 bird skeletons from China (100183); 10 specimens of mammals, 22 bird skins and 3 bird skeletons, 528 insects, 1 snake, 6 frogs, 2 lizards, 25 shrimps, 3 crabs, 1 earthworm, and 11 fishes from Suifu, Szechuan, China (101539).
- GRAHAM, T. H., Washington, D. C.:** Small cluster of pharyngeal teeth obtained at Catalina Island, Calif. (101543).
- GRANT, Dr. ADELE LEWIS (through Mrs. T. R. Allen, Ithaca, N. Y.):** 16 plants from the eastern United States (100005).
- GRAY, A. Y., Washington, D. C.:** Photograph of a portrait of John Hanson from the original in Independence Hall, Philadelphia (97918).
- GRAY, JAMES B., Williams, Ariz.:** Specimen of fossil gastropod from near Williams, Ariz. (88164).
- GREEN, MORRIS M., Ardmore, Pa.:** Skin and skull of a field mouse (100148).
- GREENE, FRANK C., Tulsa, Okla.:** 3 plants from Oklahoma and Texas (100330).
- GREENE, GEORGE M., Harrisburg, Pa.:** 48,871 specimens of miscellaneous insects, mostly beetles (99021).
- GREENFIELD, RAY, Takoma Park, D. C.:** 48 specimens of crustaceans, comprising 39 isopods and 9 amphipods, taken from a swamp near Hyattsville, Md. (100440); shrew (101062).
- GREENMAN, Dr. M. J. (See under The Wistar Institute of Anatomy and Biology, Philadelphia, Pa.)**
- GRINNELL, Dr. JOSEPH. (See under Museum of Vertebrate Zoology, Berkeley, Calif.)**
- GUATEMALA, GOVERNMENT OF:**
Dirección General de Agricultura,
Guatemala, Central America:
336 plants from Guatemala (99005, 100308, 101481).
- GUNTHER, Mrs. NELLIE G., New York City:** Collection of relics of Rear Admiral Charles D. Sigsbee, United States Navy (105 specimens) (84594).
- GUTSELL, JAMES S., Beaufort, N. C.:** 7 spider crabs, 30 amphipods, and 10 copepods (98981).
- HACKETT, CHAUNCEY, Washington, D. C.:** 41 unused postage stamps from Haiti (101497).
- HAFFERMANN, JOHN, and JOHN HUDGINS, Washington, D. C.:** Specimen of dried puffer-fish found near wharf at the foot of Eleventh street (101554).
- HALL, DAVID G., Fayetteville, Ark.:** 7 specimens of flies, some of them of especial value to the collections (2 being paratypes); 15 flies, 5 species, all types; 3 flies (98480; 100615; 101576).
- HALL, FRED H., Austin, Tex.:** 13 specimens of cacti (97436).
- HALLOCK, H. C. (See under Agriculture, Department of, Bureau of Entomology, Westbury, Long Island, N. Y.)**
- HALLOCK, Rev. H. G. C., Shanghai, China:** Color print of Pan-Ku, in Chinese mythology the first man and creator of the world, from Shanghai, China (99747).
- HALSEY, WILLIAM S., Walpole, N. H.:** Miniature portrait of José de San Martín (1776–1850) and a miniature Hawaiian flag, with a fragment of the halyard from which it was flown; also a mollusk (97699).
- HAMMOND, ARISPE, Sonora, Mexico:** Crystal of polybasite (98991).
- HANSEN, ARMIN, Monterey, Calif.:** 46 etchings and drypoints for special exhibition from January 30 to February 26, 1928 (99942, loan).

- HARDER, E. C.**, Philadelphia, Pa.: Small polished stone celt from South America (98268).
(See also under A. L. Moore.)
- HARDISTY, ARTHUR H.**, Shelburne, Vt.: 4 bird skeletons from Florida (101358).
- HARGITT, Prof. GEORGE T.**, Syracuse, N. Y.: The Charles W. Hargitt Hydroid Collection, comprising 456 slides and 690 bottles, estimated to contain approximately 2,000 specimens (97540).
- HARLAN, Mrs. JAMES S.**, Washington, D. C.: 14 pieces of costume, watches, cases, and other articles, of the 14th-17th centuries, and a golden vase (97397).
- HARLTON, BRUCE**, Tulsa, Okla.: Type specimens of foraminifera from the Carboniferous of Texas and Oklahoma (99311); 22 specimens, representing the types of 16 species of ostracods from the Pennsylvanian rocks of Oklahoma and Texas (100730); types of 14 species of Pennsylvanian ostracods from Oklahoma (101096).
- HARMS, Prof. H.** (See under Botanischer Garten und Museum, Berlin-Dahlem, Germany.)
- HARNED, Prof. R. W.** (See under State Plant Board of Mississippi.)
- HARPER, LAWRENCE**, Fort Jackson, N. Y.: Fossil brachiopods from the foothills of the Adirondacks near the St. Lawrence Valley, N. Y. (97470).
- HARPER, Dr. R. M.**, Tallahassee, Fla.: 41 plants chiefly from Alabama; 8 plants from Florida (98972, 101078).
- HARPER, W. G.**, Washington, D. C.: Anterior half of the plastron of a large fossil land turtle from Maricopa County, Ariz. (99939).
- HARRASSOWITZ, Prof. Dr.**, Giessen, Germany: 5 specimens of bauxite from various regions of Europe (95850, exchange).
- HARRINGTON, A. M.**, Philadelphia, Pa.: A speedometer made by the R. H. Smith Manufacturing Co. of Springfield, Mass., and used about 1905 (99804).
- HARRINGTON, Capt. J. H.**, United States Army, Concord, N. H.: Regimental insignia of the One hundred and ninety-seventh Coast Artillery, Antiaircraft National Guard of New Hampshire (100033).
- HARRIS, Lieut. BRYCE W.**, Pittsburgh, Pa. (through Capt. James C. Pryor): Specimen of devil shrimp taken by the donor while cruising off the Nicaraguan coast (97621).
- HARRIS, Dr. ELWIN ELMER**, Grand Forks, N. Dak.: 8 specimens for the Loeb Collection of Chemical Types (95788).
- HARRIS, Mrs. EUGENE A.**, San Antonio, Tex.: 6 plants (101289, exchange).
- HARRIS, VINCENT**, Philadelphia, Pa. (through Frank V. Chambers): "Ray-C" box camera, without lens, and a plate holder (101535).
- HART, Col. W. LEE**, United States Army, Chicago, Ill.: Bronze medal of the Reconnaissance Langroise and bronze seal commemorating the meeting of the General Society of the Cincinnati at Exeter, N. H., June 17, 1920 (97395).
- HARVARD UNIVERSITY:**
- Arnold Arboretum*, Jamaica Plain, Mass. (through Dr. Alfred Rehder): 852 plants (99952, exchange).
- Gray Herbarium*, Cambridge, Mass.: 22 fragmentary plants; 14 photographs of type specimens of plants; 6 photographs of plants; 439 plants; 227 miscellaneous plants (97116, 99153, 99274, 101094, 100495, 101768, exchange); fragmentary specimen of plant from Mexico (98306).
- Department of Mineralogy*, Cambridge, Mass.: 5 polished specimens of minerals (97453); specimen of calcium-larsenite with a cavity containing clinchhedrite and larsenite needles, from Franklin, N. J. (101507). Exchange.

HARVARD UNIVERSITY—Contd.

- Museum of Comparative Zoölogy*, Cambridge, Mass.: 38 specimens, 5 species, of amphibians; sea snake from Bangnara, Gulf of Siam; 8 birds representing 8 genera, new to the National Museum (97677, 98819, 100593, exchange); cast of the anterior end of a ramus of a toothed cetacean; 10 original copper plates of Wilson's American Ornithology (97834, 99604).
(See also under Smithsonian Institution, National Museum, collected by members of the staff.)
- HAUGHT, OSCAR, Negritos via Talara, Peru: 51 plants from Peru (98452, 98699, 98989, 100617).
- HAWAIIAN SUGAR PLANTERS' ASSOCIATION EXPERIMENT STATION, Honolulu, Hawaii (through F. X. Williams): 12 specimens of cacti, 6 species, including types of 3 (100061).
- HAWKINS, A. C., New Brunswick, N. J.: Specimen of calcite pseudomorphous after glauconite and 1 of barite from New Jersey (99478).
- HAWTHORNE, ERIC, Whigham, Ga.: Plant from the northern United States (97680).
- HAY, F. M., Pleasant Hill, Mo. (through Dr. O. P. Hay): Chipped celt from Missouri (98045).
- HAY, Dr. O. P. (See under E. F. Chilcot and F. M. Hay.)
- HAYCOCK, FRANK, Panguitch, Utah: Examples of the minerals tschermigite, jarosite, and other minerals from Utah (97444).
- HAYES, WILLIAM McKIM, Baltimore, Md.: Miscellaneous teeth and bones from the Miocene near Chesapeake Beach, Md. (99380).
- HEBARD, MORGAN. (See under Academy of Natural Sciences, Philadelphia, Pa.)
- HEIGHWAY, A. E., Jenkins, Ky.: Specimen of quartz, with inclusions, from Chula, Amelia County, Va. (99567).
- HEIMERL, Dr. A., Vienna, Austria: Plant from Paraguay (100761, exchange).
- HEINE, Miss ENID R., Sarasota, Fla. (through Agriculture, Department of, Bureau of Plant Industry, Washington, D. C.): Parasitic copepod from goldfish from Wisconsin (99270).
- HENDERSON, CHARLES F., Berkeley, Calif.: 32 plants from Argentina (100026).
- HENRY, CHARLES S. B., McGowan, Wash.: Small collection of fossils from Pacific County, Wash. (99041).
- HERCULES POWDER CO. (INC.), Wilmington, Del.: 21 specimens and 68 photographs representative of the softwood steam-distillation process (98450).
- HERRERA, Prof. F. L., Cuzco, Peru: 225 plants from Peru (98305, 98447, 101132).
- HERRICK, Prof. GLENN W., Ithaca, N. Y.: 4 cotype specimens of thrips, representing 2 species (99548).
- HERTER, Dr. W., Montevideo, Uruguay: 23 plants (97363).
- HESS, FRANK L., Washington, D. C.: Examples of jarosite and scheelite from wolframite deposits of Homestake Mining Co., Lead, S. Dak. (98830).
(See also under B. S. Wilson.)
- HEWETT, D. F., Washington, D. C.: 5 specimens of minerals from Joachimsthal, Czechoslovakia (100937).
- HIBBARD, RAYMOND R., Buffalo, N. Y.: Specimen of Devonian fish (100011, exchange).
- HICKEY, ROBERT F., Apalachin, N. Y.: Specimen of a rare Devonian glass sponge from near Apalachin, Tioga County, N. Y. (101079).
- HIDDEN, Mrs. W. H., jr., Greenwood, Va.: A French linen napkin, part of wedding outfit of Mlle. Marie Gornais, who was married in Geneva, Switzerland, in 1799 (101344).
- HIGGINS, Miss LENA, Long Beach, Calif.: Crab from Anaheim Slough, Calif. (100562).

- HILDEBRAND, S. F.** (See under Commerce, Department of, Bureau of Fisheries.)
- HILL, GERALD F.**, East Melbourne, Australia: Specimen of a very rare heteropteran new to the Museum collections (98049); 7 specimens of flies from Australia (99039, exchange).
- HINKLE, J. F.**, Roswell, N. Mex.: Specimens of the mineral aragonite from 60 miles north of Roswell, N. Mex. (99503).
- HITCHCOCK, Prof. A. S.** (See under Agriculture, Department of, Bureau of Plant Industry.)
- HITCHCOCK, LEITH F.**, Uvalde, Tex.: Specimen of living cactus (101569).
- HOES, Mrs. R. G.** (See under Miss Julia Ten Eyck McBlair.)
- HOFFMAN, Dr. WILLIAM A.**, San Juan, Porto Rico: 3 beetles from Porto Rico (99485).
- HOLL, FRED J.**, Durham, N. C.: 6 slides of a fluke from the intestine of a reptile (100759).
- HOLT LUMBER CO.**, Oconto, Wis.: 6 specimens of hardwood lumber (95770).
- HOLTUM, Dr. R. E.** (See under Botanic Gardens, Singapore, Straits Settlements).
- HOLZINGER, Prof. JOHN M.**, Winona, Minn.: Skin and skull of a banana opossum (97114); tooth of a mammoth from near Winona (97439).
- HOMBERSLEY, Archdeacon ARTHUR**, Trinidad, British West Indies: 78 specimens of ferns from Trinidad (98229, 100030, 100224, 101077, 101510).
- HOOD, Prof. J. D.** (See under Rochester, University of, Department of Biology.)
- HOPPIN, C. A.** (See under W. Lanier Washington.)
- HORN, Dr. WALTHER.** (See under Deutsches Entomologisches Museum, Berlin-Dahlem, Germany.)
- HORSFALL, BRUCE**, Washington, D. C.: A painting, by the donor, of the extinct bird "The Great Auk" (101295, loan).
- HORTICULTURAL COMMISSIONER**, Los Angeles, Calif. (through H. M. Armitage, Deputy Commissioner): 13 specimens of flies reared from husks of green walnuts (99086); 6 flies from California (101364); 2 flies and their puparia reared from English walnuts in California (101858).
- HOUGH, GEORGE J.**, Washington, D. C.: Examples of the new mineral cocinerite and of an unknown mineral from the Cocinera mine of the Mexican Copper Co., Ramos, San Luis Potosi, Mexico (98270).
- HOUGH, Dr. and Mrs. WALTER**, Washington, D. C.: Candlestick of glass made at Albert Gallatin's factory at New Geneva, Pa., about 1812 (99723).
- HOWARD, JAMES T.**, Washington, D. C.: French single-shot Gras rifle of 1874 and a German Mauser rifle of 1915 (97910).
- HOWARD, Dr. L. O.**, Washington, D. C.: Rattle anklet from Natal, consisting of cocoons of a saturnid moth sewed on a leather band (100154).
- HOWELL, A. B.**, Washington, D. C.: 7 specimens, 3 species, of shells from Europe and the District of Columbia (97689); skeleton of a meadow mouse (99150); western red-tailed hawk (101063); 2 Asiatic fishes (101619); 2 small rodents from India (101844). (See also under The Los Angeles Examiner.)
- HOWELL, A. B., and E. D. REID.** Washington, D. C.: Worm, and metacercariae of a trematode (99793).
- HRDLICKA, Dr. A.**, Washington, D. C.: 150 photographs of the arts and industries of Czechoslovakia and 110 photographs of individuals (101498).
- HUBBS, CARL L.** (See under Michigan, University of.)
- HUBEL, J. J.**, Arion Park, Fla.: Specimen of insect (99140).
- HUCKEL, EARLE W.**, Walpole, Mass.: 54 specimens consisting of drawings, engravings, lithographs, books, paint

- HUCKEL, EARLE W.—Continued.
brushes of Thomas Sully and John Neagle, and the flute of Thomas Sully (99933).
- HUCKETT, Dr. H. C., Riverhead, N. Y.: 29 specimens of flies, including types, allotypes, and paratypes (99513, 100054).
- HUDGINS, JOHN. (See under John Haffermann.)
- HUDSON RIVER DAY LINE, THE, New York City: 2 models of Hudson river steamboats, namely, *Hendrick Hudson*, 1906, and *Clermont*, 1807 (100518, loan).
- HUMBERT, Prof. H., University of Algiers, Algiers, Algeria (through Dr. Walter T. Swingle, Washington, D. C.): 30 plants from Madagascar (97369).
- HUNGARIAN NATIONAL MUSEUM, Budapest, Hungary (through Baron G. J. de Fejérváry): 3 lizards from Asia, collected by Dr. E. Csiki (99906); 100 specimens of plants (Century VIII) from Hungary (100813, exchange).
- HUNTER, DARD, Chillicothe, Ohio: Book entitled "Primitive Paper Making," by Dard Hunter (99500, exchange).
- HYATT, GEORGE. (See under Tom Conyers.)
- HYDE, EDWARD, Talcahuano, Chile, South America: 95 crayfishes from South America (98477).
- HYLAND, JACK, Pazna, Bolivia: 9 specimens of the mineral teallite from Monserrat Mine, Pazna, Bolivia (101382); specimen of the mineral aramayoite from Bolivia (101763).
- ILLINGWORTH, Dr. J. F., Honolulu, Hawaii: 7 insects and 9 flies, including the type of a new species (92268, 98202).
- IMBRIE, Mrs. ROBERT WHITNEY, Washington, D. C.: Rattle, chief's ceremonial staff, and a paddle, all from the Congo, Africa (98532).
- INDIA, GEOLOGICAL SURVEY OF, Calcutta, India: 2 specimens of minerals, magnesioblythite and spandite (101986, exchange).
- INDIAN CAMP CURIO STORE, Owensville, Ark.: Specimen composed of aegyrite, feldspar, and other minerals from Magnet Cove, Ark. (101791).
- INDIAN MUSEUM Calcutta, India (through R. Chanda, superintendent): 94 prehistoric stone implements from India (88427, exchange).
- INGLES, L. G., Claremont, Calif.: 2 beetles (100972).
- INSLEY, Mrs. H. R., Pittsburgh, Pa.: Three pairs of shoes from the Philippine Islands and a pair of straw sandals from Japan (99093).
- INSTITUT FÜR MEERESKUNDE, Berlin, Germany: 2 lots of shipworms (99091).
- INSTITUT FÜR SCHIFFS- UND TROPENKRANKHEITEN SOWIE ARZTLICHE BEAUFSICHTIGUNG DER HAFEN, Hamburg, Germany (through Dr. E. Martini): 9 mosquitoes (99287).
- INTERIOR, DEPARTMENT OF:
National Park Service, Zion National Park, Utah (through A. M. Woodbury): 93 plants chiefly from Zion National Park (98443).
United States Geological Survey: Collection of Upper Cambrian trilobites collected by T. S. Lovering near Fairplay, Colo. (96983); collection of fossil plants from the Esmeralda formation of Nevada, described by E. W. Berry (97437); collection of Triassic fossil plants from the Shinarump conglomerate of southern Utah, described by E. W. Berry (97438); types and figured specimens of fossil plants from the Cretaceous of Alaska, to be described in a Professional Paper of the United States Geological Survey by Arthur Hollick and George C. Martin (98284); collection of quicksilver ores, illustrating Bulletin 795-E by W. F. Foshag (99120); 3 specimens of the mineral kernite from the borax

INTERIOR, DEPT. OF—Continued.

United States Geol. Survey—Con.
mine of the Pacific Coast Co., Kern County, and 1 specimen of pegmatite dike from the San Diego mine, Mesa Grande, Calif. (99149); 52 specimens of plants collected in northern Alaska by J. B. Mertie, jr. (99565); 127 valves of marine pelecypods, 27 marine gastropods, and 101 specimens of land and fresh-water gastropods from Florida, collected by Drs. G. Wythe Cooke and W. C. Mansfield (101278); potash cores from Government test wells in New Mexico and Texas (101373); types and figured specimens of Middle and Upper Triassic invertebrate faunas of North America described by James Perrin Smith in Professional Papers 83 and 141 of the United States Geological Survey (101605); types and figured specimens of fossil plants from the Denver and associated formations of Colorado, described by F. H. Knowlton in Professional Paper 155, United States Geological Survey (101606).

(See also under Dr. J. B. Scrivenor.)

INTERNATIONAL M U T O S C O P E REEL CO., New York City, through William Rabkin): 2 Brogan lenses (98195).

JACKSON, W. H., Washington, D. C.: 3 albumen prints made in the period 1872–1878 (101097).

JACOBSEN, EDWARD, The Hague, Netherlands: 100 specimens of named insects (101761).

JACOT, ARTHUR P., Tsinan, Sung, China: 7 skins with skulls and 2 odd skulls of mammals from Weih-sien, Shantung (101757).

(See also under Shantung Christian University.)

JACQUES, Mrs. BERTHA E. (See under Eric G. Scott.)

JAEGER, EDMUND C., Riverside, Calif.: 48 plants from Nevada (98011, 98411).

JAMAICAN DEPARTMENT OF AGRICULTURE, Government Laboratory, Kingston, Jamaica (through C. C. Gowdey): Snail shell from Jamaica (97158).

JANNEY, Miss NANNIE HAMILTON, Alexandria, Va.: 3 models of Janney railroad car couplers, viz, wooden model, hand whittled by the pioneer inventor, Maj. Eli H. Janney; one wood and metal demonstration model; one demonstration model of Robert E. Janney's improved coupler (100780).

JARDIN BONTANIQUE DE L'ETAT, Brussels, Belgium: Fragment of type specimen of a fern (99600, exchange).

JAUME, MIGUEL, Vedado, Habana, Cuba: Approximately 250 specimens of mollusks (98492).

JAY, PETER A., Washington, D. C.: Pair of silver candlesticks of the period of the Revolution, owned by Chief Justice John Jay (101765).

JENKINS, C. FRANCIS, Washington, D. C.: Part of a radio vision receiving set, and a frame of news clippings, dated June 14, 1925 (98222).

JEWETT, STANLEY G., Portland, Oreg.: Bone of a short-tailed albatross from an Indian mound in Oregon (99582); skeleton of a prairie falcon from Oregon (100587).

JOB, CHARLES, Richmond, England: 50 carbon prints for special exhibition during October and November, 1927 (98221, loan).

JOHANSEN, FRITS, Ottawa, Canada: 28 specimens of crustaceans from Nova Scotia and Canada (94239); amphipod from the Gulf of St. Lawrence, taken from the stomach of a cod (100357); pycnogonid from Canada (101135); 90 specimens of crustaceans (101520).

(See also under Canadian Government, Department of Mines, Geological Survey.)

- JOHNSON, FRANK, New York City: 30 insects, Oriental and African Lepidoptera (97451); 65 butterflies and moths, a most valuable addition to the Museum collections (99104); 250 butterflies and moths, including some fine new species (99921); 170 moths (100212); 50 exotic Lepidoptera and 500 Lepidoptera from Texas (101144).
- JONES, CHARLES C., Washington, D. C.: A wet plate transparency (100058).
- JONES, Miss JENNIE, Richmond, Va. (through O. M. Freeman): Plant from Virginia (98825).
- JONES, RICHARD A., Austin and Junction, Tex.: 8 specimens of marine shells from Texas and 2 seeds; 47 specimens of fossils from the Upper Cambrian of Blanco County, Tex. (98708, 100572).
- JONES, STOCKTON W., Washington, D. C.: Blue and white Staffordshire pottery vessel; lady's embossed leather handbag, which has been in the family of the donor between 75 and 100 years; sealskin chatelaine bag used 60 years ago by the mother of the donor; oak cane made from one of the rafters of Independence Hall, Philadelphia (98977, 99117, 99170, 99344).
- JONES, WALDO, Washington, D. C.: Specimen of beryl from Amelia, Va. (98550).
- JORDAN, Dr. KARL, Tring, Herts, England: Specimen of a rare moth (101482).
- JUDD, C. S., Honolulu, Hawaii: A nearly complete skeleton of a Hawaiian goose (100586).
- JUNGE, CARL, Concepcion, Chile: 3 skeletons of birds from Chile (97974).
- KANSAS, MUSEUM OF THE UNIVERSITY OF, Lawrence, Kans. (through C. D. Bunker): 4 skeletons of Cassin's sparrow from Kansas (97423); 2 bat skins with skulls from Kansas (98063); skeletons of a mammal and a bird (100584). Exchange.
- KARLING, Dr. JOHN S., New York City: 150 plants from British Honduras (100191).
- KEARNEY, Dr. T. H. (See under Agriculture, Department of, Bureau of Plant Industry.)
- KELEHER, T. A., Washington, D. C.: 300 living silkworms (101767).
- KELLOGG, Dr. C. R., Foochow, China: 5 crabs, together with a collection of snails and myriapods (97619).
- KELLY, Miss MARGARET P., Sacramento, Calif.: Package of plant seeds (100040).
- KENDALL, Dr. EDWARD C., Rochester, Minn.: 15 specimens for the Loeb Collection of Chemical Types (97548).
- KENEASTER, Miss ELSIE, Washington, D. C.: Tape-lace collar made about 1899 by Mrs. McChensey and worn by the donor's mother, Mrs. Lillian M. Keneaster (99597).
- KENNEDY, E. F. (See under Southern Railway System.)
- KENNEDY, WILLIAM M., jr., Washington, D. C.: Small collection of Indian material, comprising doll cradles, moccasins, pouches, bow and arrows, and other articles (101044).
- KENOYER, L. A., Kalamazoo, Mich.: Specimen of tree fern and 596 plants from Barro Colorado Island, Canal Zone (98192; 98214).
- KENYON, A. S., Melbourne, Australia: Archeological material from various parts of Australia, comprising 54 specimens (97955, exchange).
- KIDDER, Dr. A. V., Andover, Mass.: Woodchuck tooth and 20 lots (19 species) of bird bones (98505).
- KIDDER, Mrs. ANNA W., Berkeley, Calif.: 2 plants (97618, exchange).
- KILBOURNE, Col. C. E., United States Army, Washington, D. C.: Shoulder patch insignia of the Eighty-ninth Division (97412).
- KILLIP, ELLSWORTH P., Washington, D. C.: 31 plants from the United States (98878).

- KILPATRICK, ESTATE OF LUISA V DE** (through Mrs. Julia K. Rafferty and Mrs. Laura E. Morgan, executrices): Documents relating to the career of Gen. Hugh Judson Kilpatrick, United States Army (6 specimens) (97903).
- KIMZEY, A. H.**, Farmersville, Tex.: Fossil remains of a turtle from the Taylor marl near Farmersville, Tex. (100223).
- KING, GEORGE F.** (See under Agricultural and Mechanical College, Stillwater, Okla.)
- KINGSHORNE, WILLIAM**, Washington, D. C.: Early American druggists' bottle (99551).
- KINSER, GEORGE H.**, Anchorage, Ky.: Hairworm (97610).
- KIRK, Dr. E. C.**, Philadelphia, Pa.: Early type of microscope made by Silberrad of London (100023); skull of a mammal. (101101).
- KIRN, ALBERT J.**, Somerset, Tex.: 235 specimens of land and fresh-water shells from Texas, Louisiana, and Oklahoma (100560).
- KNOWLTON, GEORGE F.** (See under Utah Agricultural College.)
- KNULL, J. N.**, Harrisburg, Pa.: 61 specimens of undetermined Hymenoptera (99145).
- KOFOID, Dr. C. A.** (See under California, University of.)
- KRAUSS, M. B.**, Salem, Ohio: Specimen of worm (97125).
- KRUHM, F. W.**, Spencerville, Md.: Great horned owl from Maryland (98238).
- KUMM, Dr. H. K. W.**, Pacific Beach, Calif.: Plant from California (99347); seven plants from California (100792, 101585, exchange).
- KYLIE, H. R.** (See under Agriculture, Department of, Forest Service.)
- LABOR, DEPARTMENT OF:**
Children's Bureau: 3 films, "The Healthy Baby," "Trails that Lead to Mothers and Babies," and "Rickets," for use in the automatic delineascope to supplement exhibits in the "Hall of Health" (98449).
- LABOR, DEPARTMENT OF—Contd.**
Women's Bureau: 3 films for use in the automatic delineascope (98719).
- LAIRE, M.**, Marne, France: Collection of fossil shells from the Tertiary of France (93875).
- LAMBERT, R. R.**, Washington, D. C.: Scarlet tanager (97374).
- LANCASTER, S. J.**, Washington, D. C.: Old English pair-case watch made in 1815 by M. Harvey, London, England (98462).
- LANKESTER, C. H.**, Cartago, Costa Rica, Central America: 15 plants from Costa Rica (97693, 99148, 99171).
- LANE, M. C.**, Toppenish, Wash.: 31 specimens of beetles, including paratypes of 3 species (100577).
- LA PLATA MUSEUM**, La Plata, Argentina: 11 specimens of fossil crustaceans and a bryozoan from Argentina (97488).
- LARSEN, E. S.**, Cambridge, Mass.: An analyzed and described specimen of aegrite from Libby, Mont. (99802).
- LATCHFORD, Hon. F. R.**, Toronto, Ontario, Canada: 20 fresh-water shells from the Province of Ontario, Canada (98050); 55 specimens of fresh-water shells from Canada (98274).
- LATHAM, Roy**, Orient, Long Island, N. Y.: 24 moths and 8 dragonflies (97168); 2 bird lice (100320); marine shell from Long Island, N. Y. (100488); 103 moths (100745); 6 isopods taken from the Peconic River, near Orient, Long Island (100752); 24 specimens, 4 species, of land and fresh-water shells from Long Island and the Bahama Islands (100753); approximately 75 specimens of land and marine shells from Long Island, N. Y. (101583).
- LA WALL, Prof. CHARLES H.** (See under Prof. E. Fullerton Cook.)
- LAWRENCE & CO.** (See under Pacific Mills.)
- LAWSON, CHARLES F.**, Waltham, Mass.: Photographic copy from a daguerreotype of the locomotive

LAWSON, CHARLES F.—Continued.

"Charles Phelps," built for the Providence & Stonington Railroad by Matfield Locomotive Works, Matfield, R. I., about 1856 (98528).

LEA, Miss NINA (through Arthur H. Lea, executor, Philadelphia, Pa.): 16 cut gems of sphene to be added to the Isaac Lea collection (101073).

LEE, ARNOLD, Washington, D. C.: A large fossil oyster shell from Virginia Beach, Va. (100776).

LEE, O. IVAN, Irvington, N. J.: 8 specimens of radioactive hafniferous cyrtolite from Bedford, N. Y. (101166), exchange).

LEE, Miss SARAH, Washington, D. C.: Uniform coat worn during the Civil War by Capt. Charles C. Lee, United States Army (99498).

LE GOULLON, G. T., Bonito Springs, Fla.: 2 human skulls from a shell heap at Bonito Springs, Fla. (100492).

LEICESTER MUSEUM, CITY OF, Leicester, England: 19 specimens of rocks illustrating the Charnian pre-Cambrian rocks and associated igneous rocks (99437).

LENGERKE, J. VON, Orange, N. J.: 34 hawks from New Jersey (98552, 98701, 98727, 99122); (through Col. Wirt Robinson): 5 hawks, 4 species, from New Jersey (99026).

LEON, Rev. Brother, Vedado, Habana, Cuba: Plant from Cuba (98483).

LEONARD, E. C., Washington, D. C.: 8 specimens of land shells from Ohio (99499).

LICEO DE COSTA RICA, San Jose, Costa Rica, Central America: (through Prof. J. Fidele Tristan, director): 121 plants from Costa Rica (98067).

LILLY & Co., ELL, Indianapolis, Ind.: 14 specimens of official medicines containing iron and potassium (98498).

LINCOLN, EDWIN H., Pittsfield, Mass. (through Dr. Edgar T. Wherry): Orchid (97784).

LINCOLN, F. C., Takoma Park, Md.: 8 ducks, 3 species, from South Caro-

LINCOLN, F. C.—Continued.

lina (100355); nest and 4 eggs of a prothonotary warbler from Dyke, Va. (101846.)

LINDBERGH, Col. CHARLES A., St. Louis, Mo.: The *Spirit of St. Louis*, which made the first nonstop flight between the United States and Europe (101830, loan).

LINTON, Prof. EDWIN, Philadelphia, Pa.: 49 slides of parasites of birds, representing 34 species, 9 of which are types (99130); 36 slides of parasites of birds, representing 22 species, 9 of which are types (99131).

LITTLE, ARTHUR D. (Inc.), Cambridge, Mass.: 2 copies of Industrial Bulletin No. 16, April, 1928, of Arthur D. Little (Inc.), the first complete publication sent by telephoto and reproduced at the receiving end by zinc cuts, together with 1 master copy of the publication, 10 positive sending films, 10 received negatives, 10 positive prints from received negatives, and 4 zinc etchings from which the publication was printed (37 specimens in all) (101306).

LLOYD MYCOLOGICAL COLLECTION, THE C. G. (See under Smithsonian Institution.)

LLOYD, Dr. JOHN URI, Cincinnati, Ohio: The original experimental extractor and concentrator, known as "Lloyd's Cold Still," and 4 Ebert prize medals awarded to the donor by the American Pharmaceutical Association for scientific papers (99916).

(See also under Dr. C. S. Amidon.)

LLOYD PAPER CO., E. E., Chicago, Ill.: Water-marked framed picture of Col. Charles A. Lindbergh (101589).

LODGE, Mrs. GEORGE CABOT, Washington, D. C. (through J. E. Lodge): An Egyptian wooden mask (99136).

LODGE, J. E. (See under Mrs. George Cabot Lodge.)

LOENING AERONAUTICAL ENGINEERING CORPORATION, New York City: Airplane rudder for the Loening amphibian *San Francisco*,

- LOENING AERO. ENG. CORP.**—Con. to replace the one received on the machine in order to exhibit the plane as it was during the Pan American "good will flight" (100012).
- LONGLEY, Dr. WILLIAM H.**, Baltimore, Md.: 21 specimens of blennoid fishes, including the types of one new genus and two new species, and 2 crabs, from Tortugas, Fla., collected for the donor (98218).
- LOS ANGELES EXAMINER, THE**, Los Angeles, Calif. (through A. B. Howell): 3 photographs of a blue whale taken off the coast of the island of San Clemente (97885).
- LUEDERWALDT, Dr. H.** (See under Museu Paulista, Sao Paulo, Brazil, South America.)
- LYNCH, JOHN**, Washington, D. C.: Egg of a Central American parrot (100583).
- McATEE, W. L.**, Washington, D. C.: 8 plants from Virginia (100738).
- McBLAIR, Miss JULIA TEN EYCK** (through Mrs. R. G. Hoes, Washington, D. C.): Doll representing Dolly Madison (97265).
- McBRIDE, IRWIN, C.**, Guanajuato, Mexico: Remains of a fossil elephant from Mexico (87330).
- McCALL, A. G.** (See under Charles C. States.)
- McCAUSLAND, THOMAS G.** (See under H. F. Flegal.)
- McCLELLAN, GEORGE B.**, Washington, D. C.: Silk banner, a gold badge, and 2 silver badges owned by Maj. Gen. George B. McClellan, United States Army (98721).
- McDONALD & SON, CHARLES M.**, Daytona Beach, Fla.: Mollusk (98982).
- McGREGOR, R. C.** (See under Philippine Islands, Government of, Bureau of Science.)
- McKAY, HARRY**, Cananea, Sonora, Mexico: Specimen of sphalerite from Cananea (98992).
- McKEE, Mrs. T. C., jr.**, Lake Junaluska, Fla.: Plant from North Carolina (97877).
- McKISSACK, JAMES**, Glasgow, Scotland: 43 pictorial photographs for special exhibition during the month of March, 1928 (100323, loan).
- McLELLAN, Dr. ROY D.**, Garfield, Utah (through Dr. T. W. Stanton, Washington, D. C.): The type specimen of a new genus and species of fossil from the Upper Cretaceous, Sucia Island, Wash. (100793).
- McMAHON, Mrs. CHARLES C.**, Fulton, Ill.: Miniature Mexican basket and basketry hat (101602).
- McNABB, CHARLES E.**, Washington, D. C.: Chest of tools used in cabinet-making and house framing by James McNabb from about 1827-1890 (99011).
- McNEIL, GEORGE M.**, Winthrop, Mass.: 2 skins of birds from Massachusetts (99468).
- MACCURDY, Dr. GEORGE GRANT**, New Haven, Conn.: 6 ancient worked flints (4 Acheullan, 1 Mousterian, and 1 Chellean) (99368).
- MACFADDEN, J. P.**, New Denver, British Columbia, Canada: 23 specimens of ferns from British Columbia (98289).
- MACGINITIE, G. E.** (See under Fresno State College, Fresno, Calif.)
- MACKAY SCHOOL OF MINES**, University of Nevada, Reno, Nev.: 6 specimens of dumortierite from Nevada localities (99710, exchange).
- MAGUIRE, Mrs. JOSEPH T.**, Chevy Chase, Md.: Sioux Indian buckskin doll (101744).
- MAGYAR NEMZETI MUZEUM**, Budapest, Hungary: Examples of the minerals vashegyite and ajkaite (101529, exchange).
- MAHAFFEY, C. R.** (See under Coyotena Agricultural College.)
- MAIDL, Dr. F.** (See under Naturhistorisches Museum Zoologische Abteilung.)
- MALLINSON & CO. (INC.)**, H. R., New York City: A series of 47 silk and rayon fabrics consisting of printed novelties called "Playgrounds of the World," and groups

- MALLINSON & CO. (INC.)—Contd.**
illustrating resist printing, screen printing, warp printing, cross dyeing, piece dyeing, and the double weaving of rayon velvet (101284).
- MALLOCH, J. R.,** Washington, D. C.: 3 genotypes of flies (99010); 2 flies, including the paratype of 1 new species (100164).
- MALONEY, J. O.,** Washington, D. C.: Salamander from Meridian, Miss. (98999).
- MANLEY, JOHN A.,** New Brunswick, N. J.: Model of water-tube boiler illustrating the practice of the National Water Tube Co., New Brunswick, N. J., in 1876 (98634).
- MANYETTE, W. C.,** Washington, D. C.: Skin and skeleton of a ferret (97998).
- MARIE-VICTORIN, Brother,** Montreal, Quebec, Canada: Photograph of type specimen of a plant (100862).
(See also under Montreal, Université de.)
- MARSH, CHARLES,** Washington, D. C.: Human skull from the Chile coast near Antofagasta (100579).
- MARSH, O. GAYLORD,** Sydney, Nova Scotia: Collection of whale food and parasites, comprising 200 specimens of crustacea obtained at South Georgia by Capt. Peter Sorlle, at the request of the donor (97657).
(See also under Ivan A. Bayley.)
- MARSHALL, BYRON C.,** Imboden Ark.: 16 crayfishes from Arkansas and Missouri (98865, 100163); 7 bats from Marvel Cave, Mo. (98866, 99755); 3 worms (98867, 99040); 2 fishes (98874); 19 insects collected in Arkansas (99087, 99096).
- MARSHALL, ERNEST B.,** Laurel, Md.: Meadow lark (99796); 36 fishes collected in the Little Patuxent River; also 57 fishes collected from Bear Branch, near Laurel, Md. (101893).
- MARSHALL, GEORGE,** Washington, D. C.: Albinistic house sparrow from Maryland (98729).
- MARSHALL, HENRY,** Wilson, N. C.: 6 specimens of surf scoter from North Carolina (100176).
- MARSHALL-JACKSON, Chicago, Ill.:**
Examples of fine letter press printing (101886).
- MARSHALL, WILLIAM, Warren, Ariz.:**
5 specimens of minerals from the Shattuck mine, Bisbee, Ariz. (98993).
- MARSHALL, WILLIAM B.,** Washington, D. C.: 6 specimens of embossed walnut in the form of medals which were part of the exhibit of the Philadelphia Ornamental Wood Co. at the Centennial International Exhibition, Philadelphia, 1876 (101343).
- MARTIN, J. O.,** San Francisco, Calif. (through Mrs. D. H. Blake): 10 beetles (98715).
- MARTINI, Dr. E.** (See under Institut für Schiffs-und Tropenkrankheiten sowie Arztliche Beaufsichtigung der Hafen).
- MARVEL, Dr. CARL S.,** Urbana, Ill.: 12 specimens for the Loeb Collection of Chemical Types (97553).
- MASARYK UNIVERSITY, Botanical Institute, Brno, Czechoslovakia:** 100 specimens of plants (Century III. Flora Exsiccata Reipublicae Bohemicae Slovenicae) (100334, exchange).
- MATHENY, G. E.,** Washington, D. C.: Hermit thrush from Washington, D. C. (98831).
- MATHESON, Prof. ROBERT, Ithaca, N. Y.:** Specimen of fly collected on ruffed grouse at Wellsville, N. Y. (99262).
- MATHEWS, Prof. A. L.,** Chicago, Ill.: Approximately 100 specimens of Permian bryozoans from the Wasatch Mountains (99119, exchange).
- MATHEWS, W. H.,** Huntington, W. Va.: Archeological specimens from a village site near Gallipolis Ferry, W. Va., on the Ohio River (99791).
- MAVROMOUSTAKIS, G. A.,** Limassol, Cyprus: 14 specimens of insects from the island of Cyprus (93556); 27 Hymenoptera, 4 Coleoptera, and 46 specimens of miscellaneous insects from Cyprus (96500, 99006, exchange).

- MAYNARD, E. A.**, Jamaica, N. Y.: Specimen of datolite from Westfield, Mass.; 3 specimens of prehnite and 1 of calcite on prehnite from Pater-son, N. J. (98551).
- MAZYCK, WILLIAM G.**, Charleston, S. C.: 2 mollusks (99590).
- MEGGITT, Dr. F. J.**, Rangoon, Burma, India: 500 specimens of miscellaneous insects, representing 220 species, mostly beetles (97448, 97449).
- MELENEY, Dr. H. E.**, Nashville, Tenn.: 2 specimens of parasitic worms and 103 intermediate hosts (101496).
- MELL, C. D.**, New York City: 49 plants (97666, 101348); plant from Mexico (100961).
- MERCK & CO. (INC.)**, Rahway, N. J.: 22 specimens of chemicals used in the preparation of medicines official in the United States Pharmacopoeia X and National Formulary V (99922).
- MESSER, RICHARD**, Richmond, Va. (through Agriculture, Department of, Bureau of Entomology, Washington, D. C.): 46 specimens of freshwater shrimps taken from the reservoir at Newport News, Va. (98742).
- MESTAYER, Miss MARJORIE K.**, Wellington, N. Z.: 6 specimens of marine mollusks from New Zealand (98347, exchange).
- MEXIA, Mrs. YNES**, Berkeley, Calif.: 1,153 plants from Mexico (98538).
- MEXICO, GOVERNMENT OF:**
Direccion de Estudios Biologicos:
 Bat and a plant (97121, 97995).
Direccion Forestal y de Casa y Pesca, Mexico, Mexico (through Dr. Carlos Stansch): Collection of marine invertebrates, including approximately 260 specimens of crustaceans, and a collection of mollusks (nudi-branches), 6 specimens (97145).
- MEYER, Dr. REINHOLD**, Darmstadt, Germany: 262 specimens of Hymenoptera, representing 44 species (98547, exchange); 39 specimens of undetermined Hymenoptera, consisting chiefly of wasps of the families
- MEYER, Dr. REINHOLD—Continued.**
 Chrysididae and Sphecidae, mostly from Chile (99799).
- MICHIGAN STATE COLLEGE**, East Lansing, Mich. (through Prof. R. H. Pettit): 2 flies from Indiana (97359).
- MICHIGAN, UNIVERSITY OF**, Ann Arbor, Mich. (through Carl L. Hubbs): 2 specimens of fishes, para-types (96774); (through Prof. F. M. Gaige): 27 flies (94995).
- MILAS, Dr. WILLIAM A.**, Princeton, N. J.: 8 specimens for the Loeb Collection of Chemical Types (98342).
- MILES, Maj. SHERMAN**, United States Army, Washington, D. C.: Military commissions awarded to Gen. Nelson A. Miles, United States Army, 1861-1901 (15 specimens) (97394, loan).
- MILES, Maj. SHERMAN**, United States Army, Fort Monroe, Va., and Mrs. SAM REBER, New York City; Flag flown by Lieut. Gen. Nelson A. Miles when in command of the United States Army, 1900-1903, and wearing apparel worn by him during the Civil War (5 specimens) (100943, loan).
- MILLE, Rev. LOUIS, S. J.**, Guayaquil, Ecuador: 3 plants from Ecuador (101279).
- MILLER, Mrs. ANN G.**, Washington, D. C.: An Eskimo woman's fur robe, bought in 1921 at Fort Yukon, Alaska (101555).
- MILLER, D. B.**, Lima, Ohio: Specimen of leather shoe binding such as was used by shoemakers about the period of the Civil War for binding together the lining and upper (97596).
- MILLER, Dr. HARVARD**, Arizpe, Sonora, Mexico: 9 insects from Mexico (98714).
- MILLER, J. EARLE**, Chicago, Ill.: Set of 16 scientific medals designed by Sir Edward Thomason (101751).
- MILLER, Dr. WILLARD F.**, Washington, D. C.: Ancient terra-cotta lamp (99768).

- MINERALOGICAL INSTITUTE**, Prague, Czechoslovakia (through Prof. F. Slavik): Specimen of the mineral slavikite (101829, exchange).
- MINERALOGICAL MUSEUM**, Copenhagen, Denmark: Approximately 500 specimens, representing 164 species of invertebrate fossils from Denmark, Norway, and Sweden (100794, exchange).
- MINNESOTA, UNIVERSITY OF**, Minneapolis, Minn.: 398 plants (99583, exchange).
- MINOR, BENJAMIN S.** (See under Emily H. Edrington.)
- MISSISSIPPI STATE PLANT BOARD**, Agricultural and Mechanical College, Miss. (through Prof. R. W. Harned): Specimen of shrimp collected by Capt. Ellis Handy at Ocean Springs, Miss. (98181).
- MISSOURI BOTANICAL GARDEN**, St. Louis, Mo.: 82 plants (99348, exchange).
- MISSOURI HISTORICAL SOCIETY.** (See under Mrs. Agnes Kennett Brent.)
- MIYAZAKI SCHOOL OF AGRICULTURE**, Miyazaki-shi, Japan (through Prof. Tyozaburo Tanaka): 165 plants (98194, exchange).
- MONTREAL, UNIVERSITY OF**, Montreal, Canada: 354 plants from Quebec (97156) (through Brother Marie-Victorin): 359 plants from northern Quebec (99737, exchange).
- MOORE, A. L.**, Cuthbert, Ga. (through E. C. Harder, Philadelphia, Pa.): Clay pipe from the southeastern United States (98559).
- MOORE, CLARENCE E.**, New York City: 44 plants from Panama (99282).
- MOORE, DR. RILEY D.** (See under Dr. Margaret C. Brewington.)
- MORELL, O. E.** (See under Thomas J. Gable.)
- MORGAN BELLEEK CHINA CO. THE**, Canton, Ohio (through Charles E. Willis, secretary): Creamer, sugar bowl, teapot, square cake plate, round plate, and a tea
- MORGAN BELLEEK CHINA CO. THE**—Continued.
cup and saucer of Belleek china (98053).
- MORGAN, BRENT M.** (See under Frederick Opitz.)
- MORGAN, Mrs. LAURA E.** (See under Kilpatrick, Estate of Louisa V. de.)
- MORREY, Mrs. J. B.**, Washington, D. C.: Beaded deerskin belt made by the Cheyenne Indians (100028).
- MORRIS, ROBERT T.**, Venice, Fla.: 25 mollusks from Venice, Fla. (100217).
- MORSE, S. A.**, Bath, Me. (through E. A. Preble): Plant from Maine (101351).
- MOSSIGE, Dr. KJELL**, Oslo, Norway: Specimen of Wilson's petrel (97602).
- MOSSOP, M. C.**, Pretoria, South Africa: 475 unmounted miscellaneous insects and 10 coleopterous larvae (98987); 100 specimens of undetermined miscellaneous insects of the Orders Diptera, Coleoptera, Hemiptera, Hymenoptera, and Orthoptera (100034).
- MOULTON, Dr. W. B.**, Portland, Me.: 3 specimens of the mineral purpurite from Standish, Me. (97113).
- MOXLEY, GEORGE L.**, Los Angeles, Calif.: Plant (101499).
- MULFORD BIOLOGICAL EXPLORATION OF AMAZON BASIN** (through Dr. H. H. Rusby, New York City): 113 plants from Bolivia (97361): 7 specimens of mosses from Bolivia (98236).
- MULFORD CO., H. K.**, Philadelphia, Pa.: Specimen of digitol and 1 of digitos for the digitalis exhibit (97399).
- MUNSEY TRUST CO.** (See under Dr. I. M. Casanowicz, Estate of.)
- MUNZ, Dr. PHILIP A.** (See under Pomona College, Claremont, Calif.)
- MURIE, O. J.**, Washington, D. C.: Fossil mammal bones from Alaska (97075).
- MUSEO NACIONAL**, Managua, Nicaragua: 124 plants from Nicaragua (97598, 99505).
- MUSEU PAULISTA**, Sao Paulo, Brazil (through Dr. H. Lueder-

MUSEU PAULISTA—Continued.

waldt): Starfishes, seurchins, and 19 crabs from South America (91448, 100200).

MUSEUM NATIONAL D'HISTOIRE NATURELLE, Paris, France: 2 fragmentary specimens of ferns from Costa Rica (98431); specimen of the mineral faratsihite from Faratsiho, Madagascar (98655, exchange); 4 plants from Indo-China; 605 specimens of ferns chiefly from Cuba (98884, 100758, exchange).

MUSEUM OF VERTEBRATE ZOOLOGY, Berkeley, Calif. (through Dr. Joseph Grinnell): 2 bird skins from San Miguel Island, Calif., new to the Museum collections (99587).

MUSGRAVE PENCIL CO., Shelbyville, Tenn.: Specimen of essential oil of cedar wood and the sawdust from which it is distilled (97942).

MYSZHA, C. S., Ukiah, Calif.: 16 specimens of fresh-water shells from Ukiah, Calif. (100491).

NANKING, UNIVERSITY OF, College of Agriculture and Forestry, Nanking, China: 500 Chinese plants (99750, exchange).

NASH, JOHN HENRY, San Francisco, Calif.: Folder, "A Toast to the Ladies," by Edward H. Hamilton, a pamphlet entitled "The Friendship of Robert Louis Stevenson and Jules Simoneau," written by Edward F. O'Day; and a half-tone in colors of the R. L. Stevenson house, Monterey, Calif., examples of fine printing by the donor (100955).

NASSONOV, Professor, Irkutsk, Union of Socialist Soviet Republics, in Asia (through Prof. T. D. A. Cockerell): 4 amphipods from Lake Baikal (99135).

NATIONAL ACADEMY OF SCIENCES. (See under Smithsonian Institution, National Museum, collected by members of the staff, C. W. Gilmore.)

NATIONAL ASSOCIATION OF CHIROPODISTS, New York City: An exhibit emphasizing the importance of the proper care of the feet (98437).

NATIONAL GEOGRAPHIC SOCIETY, Washington, D. C.: 3 photographs of plants (cactus) (97786); archeological and human skeletal material collected during the society's explorations at Pueblo Bonito, N. Mex., in 1927, under the direction of Neil M. Judd (100031).

NATIONAL MUSEUM, Melbourne, Australia: 74 aboriginal Australian stone implements (91210, exchange).

NATIONAL SESQUICENTENNIAL EXHIBITION COMMISSION, Washington, D. C. (See under Sesquicentennial Exposition Association.)

NATIONAL TUBERCULOSIS ASSOCIATION, New York City: 14 films for use in the automatic delinescope in the "Hall of Health" of the National Museum (98478).

NATURHISTORISCHES MUSEUM, Zoologische Abteilung, Vienna, Austria (through Dr. F. Maidl): 10 specimens of flies (96851); (through Dr. H. Zerny); 3 flies (101832).

NATURHISTORISKA RIKSMUSEETS BOTANISKA AVDELNING, Stockholm, Sweden: 205 specimens of mosses and 45 plants from Texas (97661, 99546). Exchange.

NAVY DEPARTMENT (through California Academy of Sciences): 47 bird skins from the Revillagigedo Islands, west Mexico and Lower California (100861).

United States Naval Medical School (through Capt. C. S. Butler (M. C.) United States Navy): Jones microscope of date 1805, with accessories and slides; Bausch and Lomb professional microscope, No. 11088, and a parabolic reflector (100338); 17 specimens of historical medical apparatus (100353).

NEBRASKA, UNIVERSITY OF, Lincoln, Nebr. (through Don B. Whelan): 3 specimens of flies (93162).

- NELSON, Dr. WILBUR A., Charlottesville, Va.: 5 slabs containing fossils from the Upper Cambrian at Waynesboro, Va. (98994).
- NEVEL, W. D., Andover, Me.: Specimens of beryllonite and one of casiterite from Newry, Me. (99264).
- NEVERMANN, FERDINAND, San José, Costa Rica: 2 beetles (101750, exchange).
- NEWCOME, FRANCIS P., Toronto, Canada: Bone, shell, stone, and copper objects collected during 1889-1897 in eastern Oregon (101504).
- NEW HAVEN CLOCK CO., New Haven, Conn.: Collection showing developments in American clock and watch making as represented by the products of the New Haven Clock Co., organized in 1817, comprising 35 old and modern clocks and watches, 24 old and modern clock movements, 5 panels of modern watch and clock parts, large working model of balance wheel, exhibit showing determination of standard time, 8 photographs, and 1 vibrating machine (75 specimens) (101542).
- NEW YORK BOTANICAL GARDEN, Bronx Park, New York City: 2 plants from Cuba (94266, 100173); 2 photographs and 9 specimens of plants (97368, 99556); 111 plants chiefly from Colombia (97701, 98973, 100168); 13 Panama plants (97935); 39 plants (98245, 98482, 99558, 99601, 99751, 100214, 100597, 101547); photograph of plant (99273); plant from the Virgin Islands (99531). Exchange.
- NICE, Mrs. MARGARET M., Norman, Okla.: 5 specimens of ferns from Oklahoma (97137).
- NICOLAY, ALLEN, Upper Montclair, N. J.: Beetle, new to Museum collection (98460).
- NININGER, Prof. H. H., McPherson, Kans.: Part of an individual of the Brenham, Kiowa County, Kans., pallasite (99467); examples of 3 iron meteorites (101508). Exchange.
- NORONHA, ADOLFO CESAR DE, Funchal, Madeira: 4 specimens of sponges, and a collection of echinoderms, mollusks, fishes, and birds secured by the donor at Funchal, Madeira, and neighboring islands 98533).
- NORTH CAROLINA COLLEGE OF AGRICULTURE, Raleigh, N. C. (through C. H. Brannon): 2 sawfly larvae from North Carolina (101312).
- NORTH CAROLINA DEPARTMENT OF AGRICULTURE, division of entomology, Raleigh, N. C. (through J. C. Crawford): 26 determined bees, representing 7 species, including 1 paratype, all new to the Museum collections; 4 flies, including 2 types and 1 paratype of 2 species (99137, 99151, exchange).
- NORTH CAROLINA, UNIVERSITY OF, Chapel Hill, N. C. (through Prof. W. C. Coker): 43 miscellaneous insects (97428).
- NORTH DAKOTA, UNIVERSITY OF, Department of Biology, University Station, Grand Forks, N. Dak. (through Prof. George C. Wheeler): 2 marine shells (97210): 73 specimens of marine shells from South Africa (101315).
- NORTON, Miss ELIZABETH, Palo Alto, Calif.: 5 wood-block prints, 2 in black and white and 3 in color (98242).
- NORTON, Prof. J. B. S., College Park, Md.: Plant (97665).
- NOVILLE, Lieut. GEORGE O., New York City: Bulova watch carried by the donor while a member of the crew of the trans-Atlantic airplane *America* (97905).
- NUÑEZ-TOVAR, Dr. M., Maracay, Venezuela, South America (through Dr. H. G. Dyar, Washington, D. C.): 2,000 specimens of mosquitoes from South America (98430).
- ODELL, C. P. (See under Redfield, Kendrick, Odell (Inc.).)
- O'DONOGHUE, CHARLES H., Edinburgh, Scotland: 2 salamanders from Vancouver (98818).

- OFFLEY, J. M.**, Hamilton, N. Y.: 3 nests of a robin joined in one (100447).
- OHIO AGRICULTURAL EXPERIMENT STATION**, Department of Entomology, Wooster Ohio (through George A. Filing): 9 isopods collected in greenhouses in Cleveland and Wooster, Ohio (98540).
- OHIO STATE UNIVERSITY**, Columbus, Ohio: Approximately 200 specimens of Devonian, Mississippian, and Pennsylvanian fossils from Ohio (95066, exchange).
- OHSHIMA, Dr. HIROSHI**, Fukuoka, Japan: 35 specimens of crabs found in the shells of mollusks from Fukuoka, collected by the donor (97441).
- OKLAHOMA, UNIVERSITY OF**, Norman, Okla.: 160 plants from Oklahoma and Arkansas (97928).
- OLBRECHTS, Dr. FRANS M.**, Washington, D. C.: 7 objects used by the Cherokee Indians in the treatment of disease, which were collected by the donor on the Cherokee Indian Reservation, Swayney, N. C. (97398).
- OLDROYD, Mrs. IDA S.**, Stanford University, Calif.: 2 specimens of pearly fresh-water mussels from Siam and the Republic of Colombia, and a specimen from San Francisco Bay, Calif. (98435, exchange).
- OLMSTED, Miss HELEN**, Washington, D. C.: Starling (99941).
- OLSSON, AXEL A.**, Talara, Negritos, Peru: 2 shrimps collected by the donor (100313).
- OPITZ, FREDERICK** (through Brent M. Morgan, Washington, D. C.): White-crowned sparrow (101500).
- OPPENHEIMER, LOUIS**, London, England (through George L. English, Rochester, N. Y.): Twin crystal of diamond with simple crystal attached (100567).
- ORCUTT, C. R.**, San Diego, Calif.: Crab from Jamaica, collected by the donor (97124); plant from the West Indies (97779); 7 beetles (97878); 4 arthropods, 2 crabs, a blind snake, and a specimen of fungus collected by the donor in Jamaica (98023); 5 lizards, 3 snakes, 7 crabs, 151 miscellaneous insects, specimen of peripatus, and 25 specimens of plants (chiefly ferns) from Jamaica (98197); 4 living specimens of cacti; 7 specimens of miscellaneous insects and 1 lizard; 32 insects; turtle, bird egg, crabs, and sponges, all from Jamaica (98279; 98457; 98506; 98723; 99578).
- OREGON STATE AGRICULTURAL COLLEGE**, department of botany and plant pathology, Corvallis, Oreg. (through Prof. Helen M. Gilkey): 3 plants from Oregon (98295, exchange).
- OREGON STATE BOARD OF HORTICULTURE**, Portland, Oreg. (through H. C. Atwell): 12 adult specimens of flies; 2 slides (eggs and larva), 4 mature larvae, and 4 intact puparia (99506).
- ORPET, E. O.**, Santa Barbara, Calif.: 2 photographs of plants (97599, 99795).
- ORTEGA, ING. JESUS G.**, Mazatlan, Sinaloa, Mexico: 87 small samples of woods collected by the donor in Sinaloa, Mexico (97434); (through Prof. Samuel J. Record): 30 study samples of Mexican woods (100503); 95 plants from Mexico (101502).
- ORTON, Dr. W. A.** (See under Tropical Plant Research Foundation, Washington, D. C.)
- OSTERBERG, Dr. ARNOLD E.**, Rochester, Minn.: 3 specimens for the Loeb Collection of Chemical Types (97829).
- OTIS, IRA C.**, Seattle, Wash.: 29 plants (97601).
- OVER, Prof. W. H.**, Vermillion, S. Dak.: 48 plants from South Dakota (98500).
- OXFORD, UNIVERSITY OF**, Imperial Forestry Institute, Oxford England (through Dr. J. Burt Davy): 50 plants (100300, exchange).

- OXHOLM, A. H. (See under Commerce, Department of, National Committee on Wood Utilization.)
- PACHITO, GEORGE, Celilo, Oreg.: Pair of beaded moccasins, an ancient wooden spindle, and a cedar-bark berry basket, all from Columbia River Indians (100037).
- PACIFIC BIOLOGICAL LABORATORIES, Pacific Grove, Calif. (through E. F. Ricketts): 121 specimens of crustaceans from California, all collected by the donor (96258, 96990, 97384, 99538, 99762, 100297); 149 specimens of marine invertebrates from California (98511, 98541, 99015, 99493); 20 specimens of amphipods from California (98833); approximately 15 specimens of barnacles and 2 amphipods from Monterey Bay, Calif. (98970); approximately 72 specimens of barnacles from California (99102); 8 specimens of marine shells from California (101494).
- PACIFIC MILLS, print works division, Lawrence, Mass. (through Lawrence & Co., New York City): 85 samples of all-cotton fabrics, and cotton, silk, and rayon mixtures, finished to show bleaching, piece dyeing, and roller printing (98718); 46 samples of wool dress goods, men's suitings, and alpaca and rayon linings made in the worsted department of the mills (99008).
- PALEONTOLOGISCHES STAATSMUSSEUM, Munich, Germany: 2 plates of a fossil fish from the Middle Cretaceous of Egypt (100115, exchange).
- PALMER, Dr. R. H., Seattle, Wash.: 7 specimens of fossil crustaceans, 3 barnacles, and 4 specimens of fossil crab claws, collected by the donor (98173, 100595).
- PAMPANA, Dr. E. J., Florence, Italy: 5 snakes and 1 lizard from Colombia (98226, exchange).
- PANAMA CANAL, THE, Washington, D. C.: 2 plants from the Canal Zone (98008); 7 plants from Panama (99126).
- PANTONE PROCESS (LTD.), Alper-ton, Middlesex, England: Progressive set of 4 plates and 2 prints from another plate, showing the various stages of the Pantone Printing Process, from the original photograph, "A Bridge," by H. Moulton, Esq., N. Z. (96547).
- PAPWORTH, C. E., Fort Worth, Tex. (through J. Edgar Smith, Washington, D. C.): 5 chert arrowheads from a site 3 miles east of Gustine, Tex. (101861).
- PARKE, DAVIS & CO., Detroit, Mich.: 76 specimens of official crude drugs and pharmaceutical preparations (101594).
- PARKS, JOHN, Tangier, Va.: Deformed crab claw (99484).
- PATERSON MUSEUM, Paterson, N. J.: 14 specimens of minerals from New Jersey (101838, exchange).
- PATTISON, Mrs. C. E., El Paso, Tex.: 5 living cacti from Texas (101549).
- PAYNE, THEODORE, Los Angeles, Calif.: Specimen of plant from California (98005).
- PAYNE, THOMAS W., Belmont, St. Georges, Grenada, British West Indies: 2 lizards and 5 insects from Grenada (97161).
- PEARSE, Dr. A. S., Durham, N. C.: 2 amphibians, 1 fish, 1 mollusk, and a lizard head (97888); African insect (on slide) (97889).
- PEARSON & CRAIN Co. (See under D. G. Stoner.)
- PENDLETON, Mrs. R. L., Laguna, P. I.: Lacquered box made in Gwalior, Central India, about 200 years ago (101156).
- PENNELL, Dr. FRANCIS W. (See under Academy of Natural Sciences, Philadelphia, Pa.)
- PEREZ, GILBERT S., Manila, P. I.: Nickel 1-centavo piece coined in 1927 for use in the Culion Leper Colony, P. I. (99919).
- PERRY, WALTER J., Bend, Oreg.: Small collection of vertebrate fossils from Skeleton Cave, near Bend,

PERRY, WALTER J.—Continued.

Oreg., collected by Mr. Phil. Brogan (101882).

PETTIT, Prof. R. H. (See under Michigan State College.)

PFORDTE, OTTO F., Cairo, N. Y.: 2 specimens of cobalt crystals on matrix and one of annabergite from Cobalt, Ontario, Canada (99305); 11 specimens of minerals (101046). Exchange.

PHILIPPINE ISLANDS, GOVERNMENT OF:

Bureau of Science, Manila (through R. C. McGregor): 18 skeletons of birds from the Philippines (101020, exchange); 34,359 miscellaneous insects collected in the Philippine Islands; also some shells (101049).

PHILLIPS, WALTER J., Winnipeg, Canada: 50 block-prints for special exhibition from March 26 to April 22, 1928 (100742, loan); 2 block-prints-in-color by the donor, entitled "The Field Barn" and "Winter" (101571).

PHILPOTT, ALFRED, Nelson, New Zealand: 131 specimens of Microlepidoptera from New Zealand, including a number of species not previously in the collection (99936).

PICKENS, A. L., Greenville, S. C.: Small collection of insects (Hemeroptera larvae) (99302); plant from South Carolina (101531).

PIERCE, Dr. JOHN STANTON, Georgetown, Ky.: 5 specimens for the Loeb Collection of Chemical Types (97333).

PING, Prof. C., Nanking, China: 14 amphibians and 3 reptiles from China (99526).

PITTIER, Dr. H., Caracas, Venezuela: 3 frogs and 6 lizards from Venezuela (97159); 747 plants from Venezuela (98304, 99304, 100056, 100779, 100936); 63 specimens of miscellaneous insects, some of them new to the Museum collections (98869); 16 photographs of plants (99291).

PITTS, WILLIAM B., Sunnyvale, Calif.: 9 varieties of semiprecious stones in rough and cut form (100741, 100934).

PIZZINI, ANDREW, Washington, D. C.: Crayfish and a discodrilid worm from the District of Columbia (100065).

POMONA COLLEGE, Department of Botany, Claremont, Calif. (through Dr. Philip A. Munz): Fragmentary specimen of plant; 2,026 plants (97080, 99488, 101350, exchange); 7 crabs from San Pedro, Calif. (99728).

POOLE, W. A., Pitman, N. J.: Young king snake from Pitman, N. J. (99000).

POPENOE, C. H., Silver Spring, Md.: Gray-headed lovebird (100962).

POPENOE, Miss DOROTHY H., Tela, Honduras: 65 specimens of flies from Honduras (99333).

PORTER, A. F., Decorah, Iowa: Sketch and photograph of fungus from Ecuador (100763).

PORTER, Mrs. DAVID D., Philadelphia, Pa.: 3 vases presented by the French Government to Admiral David D. Porter, United States Navy (99065, loan).

PORTO RICO, UNIVERSITY OF, Mayaguez, Porto Rico (through Prof. Stuart T. Danforth): 10 miscellaneous insects (99284).

POSTMA, H. ZEIST, Netherlands: 7 human skulls found in Holland (100787).

POST OFFICE DEPARTMENT: The official mail bag carried by Commander R. E. Byrd on his flight in which his airship *America* landed in the sea off Ver-sur-Mer, France, on the night of July 1, 1927, and which contained the first official air mail transported across the Atlantic; also two 5-cent stamps soaked by sea water from the mail which the bag contained (97794); 11 sets of specimens stamps, etc., in triplicate (4,432 specimens) received from the International Bureau of the Universal Postal Union, Berne, Switzerland (97939, 98440, 99803, 100027, 100035, 100599, 100760, 101509); 3 specimens each of the following United States postage stamps—10-cent Lindbergh air mail,

- POST OFFICE DEPARTMENT—Con.**
issue of 1927; 2-cent Burgoyne Campaign, issue of 1927, and 2-cent Vermont Sesquicentennial, issue of 1927 (6 specimens) (98303).
- PREBLE, E. A.**, Washington, D. C.: 60 plants from New Hampshire (97884). (See also under S. A. Morse.)
- PRECANCEL STAMP SOCIETY**, Altoona, Pa. (through Walter L. Gates): 9,802 precanceled postage stamps (98301); 274 precanceled postage stamps (101165).
- PRICE, Dr. E. W.**, Washington, D. C.: Fossil shell (Eocene) and a salamander from Fairfax, Va. (97921, 101362).
- PRINCETON UNIVERSITY**, Princeton, N. J. (through Dr. Edward Sampson): Slab of jaspilite from the Tamagami iron range, Ontario (100814, exchange).
- PRINT MAKERS SOCIETY OF CALIFORNIA**, Pasadena, Calif.: 35 contemporary English lithographs for special exhibition from October 3 to 29, 1927 (98287, loan).
- PROCTOR, M. J.**, Panguitch, Utah. Examples of the mineral polygorskite from near Panguitch, Utah (97991).
- PRYNADA, V.**, Wasili, Ostrow, Leningrad, U. S. S. R.: 266 undetermined specimens of insects belonging to the Orders Coleoptera, Diptera, Hemiptera, and Hymenoptera, all from Europe (102013, exchange).
- PRYOR, Capt. JAMES C.**, Washington, D. C. (See under Lieut. Bryce W. Harris.)
- PUBLIC BUILDINGS AND PUBLIC PARKS OF THE NATIONAL CAPITAL, OFFICE OF**, Washington, D. C.: 7 limb sections of white ash (98849).
- PURPUS, Dr. C. A.**, Vera Cruz, Mexico: 14 plants (97673, exchange); 71 plants from Mexico (97785, 99319, 100946).
- PURPUS, Dr. J. A.**, Darmstadt, Germany: Plant from Mexico (99527).
- PUTNAM BAFFIN ISLAND EXPEDITION**, New York City (through George P. Putnam, director): 30 lots, approximately 1,800 specimens, of marine invertebrates, 1 sponge, 2 bottom samples, 12 trout stomachs, 4 seal stomachs, 1 walrus stomach, crinoid, 2 fishes, insects, mollusks, and marine plants collected by Capt. Robert A. Bartlett (96676).
- PUTNAM, GEORGE P.** (See under Putnam Baffin Island expedition.)
- PYNE, Lieut. FREDERICK C.**, United States Army, Washington, D. C.: Human skull from Oahu, Hawaii (99474).
- QUIDLEY, Mrs. L. A.**, Cape Hatteras, N. C.: Abnormal egg of a domestic fowl (98554).
- RABKIN, WILLIAM.** (See under International Mutoscope Reel Co., New York City.)
- RADIO CORPORATION OF AMERICA**, Washington, D. C.: Photodiagram receiving set and case (98043).
- RADIUM MINERALS CORPORATION**, New York City: 3 specimens of the mineral torbernite from White Signal, N. Mex. (99938).
- RAE, F. J.** (See under Victoria, National Herbarium of.)
- RAFFERTY, Mrs. JULIA K.** (See under Kilpatrick, estate of Luisa V. de.)
- RAILFORD, Dr. L. CHARLES**, Iowa City, Iowa: 3 specimens for the Loeb Collection of Chemical Type (97557).
- RALLI, Mrs. AMBROSE**, London, England: 5 bromoil transfers for special exhibition during February and March, 1928 (100230, loan); 2 bromoil transfers—"Cobble Stones" and "At Corfu" (101065).
- RANSON, ROBERT**, St. Augustine, Fla.: Stomatopod from Florida (99019); shrimp from the Alcazar pool, St. Augustine, Fla. (100324); hermit crab collected by the donor in Florida (100744); 5 shrimps from St. Augustine (101538).

- RAUCH, WILLIAM P.**, New York City, Human jaw from Unalaska (99487).
- REBER, Mrs. SAM.** (See under Maj. Sherman Miles, United States Army.)
- RECORD, Prof. SAMUEL J.** (See under Jesus Gonzales Oretga and Yale University, School of Forestry.)
- REDFIELD, KENDRICK, ODELL (INC.)**, New York City (through C. P. Odell, vice president): An example of fine book making, entitled "Garamond type" (99002).
- REDFIELD, ROBERT**, Glenview, Ill.: 22 plants from Mexico (97654).
- REDMOND, W. B.**, Emory University, Ga.: Parasitic worms (101085).
- REED, CLYDE T.**, Kingsville, Tenn.: 10 specimens of miscellaneous insects (99099).
- REED, Dr. E. P.**, Valparaiso, Chile: Small collection of miscellaneous insects (101753).
- REEVES, Lieut. DACHE M.**, United States Army, Garrett Park, Md.: Section of an airship girder made of duralumin (99156).
- REHDER, Dr. ALFRED.** (See under Harvard University, Arnold Arboretum.)
- REID, E. D.**, Washington, D. C.: 21 fishes from the lily ponds at Kenilworth, D. C. (97775); 66 fishes, 2 squirrels, and 3 birds collected near Wilderness, Orange County, Va. (98716); 2 fishes from Virginia (101828). (See also under A. B. Howell.)
- REINCSKY, FRANK**, Rampart, Alaska: Fossil bones of extinct bison and horse from Alaska (98476).
- REKO, Dr. BLAS P.**, Durango, Mexico: 153 plants from Durango, Mexico (98288).
- REMINGTON ARMS CO., THE**, Bridgeport, Conn.: 2 display boards showing the types of cartridges made by the Remington Arms Co. (296 specimens) (98044).
- RHODE ISLAND STATE COLLEGE**, Kingston, R. I. (through A. E. Stene): 13 specimens of insects (96896); scale insects (100232).
- RICHARDS, H. B.**, Provo, Utah: 10 crayfish from Montello, Nev., together with approximately 100 didrillid worms (98963).
- RICHARDSON, Mrs. ALEXANDER H.**, Omaha, Nebr.: Straw mosaic painting entitled "The Mexican Tortilla Baker" (101544).
- RICHMOND, Dr. CHARLES W.**, Washington, D. C.: 5 birds from Putnam County, N. Y. (101608).
- RICKER, P. L.**, Washington, D. C.: Plant from Virginia (99146).
- RICKETTS, E. F.** (See under Pacific Biological Laboratories.)
- RIGGS, Miss JANE A.**, Washington, D. C.: Maynard rifle, Cal. .35, with extra shotgun barrel and leather case, made about 1855 (99309).
- RIGGS NATIONAL BANK.** (See under estate of Lieut. Gen. Samuel B. M. Young.)
- RIKSMUSEETS BOTANISKA AVDELNING**, Stockholm, Sweden: 81 plants, chiefly from Parana (97435, exchange).
- RILEY, J. H.**, Washington, D. C.: Abnormal egg of a domestic fowl (97372).
- RIMANN, Prof. E.**, Dresden, Germany: Specimen of the mineral bodenbenderite from the Province of Cordoba, Argentina (100976, exchange).
- ROADS, Miss KATIE M.**, Hillsboro, Ohio: 4 plants from Ohio (98196, 101573).
- ROBBINS, W. V.**, Magna, Utah: 2 obsidian arrowpoints (101877).
- ROBINETTE, CHARLES V.**, Conway, Ark.: 13 specimens of shrimp from Arkansas (96857).
- ROBINSON, HERBERT C.**, London, England: Skin of a bird (101484, exchange).
- ROBINSON, Col. WIRT**, United States Army, West Point, N. Y.: 340 specimens of Lepidoptera, including many rare species new to the Museum collection (97668); 10 specimens of Lepidoptera from the Philippine Islands (99017). (See also under J. von Lengerke.)

- ROBINSON, W. O., West Falls Church, Va.: Radial slab of yellow poplar, showing unusually large annual growth (98850).
- ROCH, Dr. FELIX. (See under Zoologisches Museum, Berlin, Germany.)
- ROCHESTER, UNIVERSITY OF, Department of Biology, Rochester, N. Y. (through Prof. J. D. Hood): 2 plants from the United States (98254, exchange).
- ROCKWOOD ALABAMA STONE CO., Russellville, Ala.: Polished slab of limestone (100006).
- ROEBLING FUND, Smithsonian Institution: 10 specimens of minerals (94808); 13 specimens of minerals from Franklin Furnace, N. J. (98838); miscellaneous minerals collected or purchased by Dr. W. F. Foshag in Arizona and Mexico, in May, 1927 (98852); 2 crystals of aquamarine from Southwest Africa, and a specimen of talc pseudomorph after quartz from Bavaria (98853); 3 tourmalines, 1 microlite, and 1 polucite from Maine, and 1 dendrite from Germany (98854); specimens of lodestone, tourmaline, and bastnaesite (99032); specimen of the mineral cahnite from Franklin Furnace, N. J. (99297); 18 type specimens of minerals (99359); 4 specimens of minerals (99490); specimen of pitchblend and gummite from Spruce Pine, N. C. (99782); 7 specimens of minerals (99959); specimen of topaz on tourmaline from California (100022); 7 specimens of minerals from Franklin Furnace, N. J. (100208); a cut and polished agate and a specimen of amethystine quartz from Brazil (100337); 2 twin crystals of diamond (100778); specimen of azurite and one twin crystal of cerussite from Tsumeb, southwest Africa (100867); specimen of blue tourmaline in quartz from Maine (100950); 2 mineral specimens—linneite and platinum in dunite (101052); 3 mineral specimens—herderite, eosphorite, and tourmaline from Maine (101242); specimen
- ROEBLING FUND—Continued.
of the mineral larsenite from Franklin Furnace, N. J. (101353); specimens of the mineral delafossite from the Briggs Mine, Bisbee, Ariz. (101354); specimen of the mineral antlerite from Shattuck Mine, Bisbee, Ariz. (101883).
- ROHWER, S. A. (See under Agriculture, Department of, Bureau of Entomology.)
- ROJAS, SEÑOR Prof. RUBEN TORRES, Cartago, Costa Rica, Central America: 90 plants from Central America (99018).
- ROMERO, Dr. ALBERTO, Caracas, Venezuela: Specimen of fly (98024).
- ROOSE, WILLIAM S., Central Islip, Long Island, N. Y.: Catlinite pipe with wooden stem made by the Sioux Indians (98848).
- ROST, E. C., Alhambra, Calif.: Plant (99154).
- ROTH, Dr. GEORGE B., Washington, D. C.: An obsolete type scarificator (99749, deposit).
- ROTNEB STAMP CO., Minneapolis, Minn.: Publication entitled "Standard Precancel Stamp Catalog" (98060).
- ROUNDY, P. V., Washington, D. C.: Approximately 50 specimens of marine shells and 4 barnacles from Cumberland County, Nova Scotia (99800).
- ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, London, England: 220 pictorial photographs from the 72d annual exhibition of the society, for special exhibition from December 5 to 31, 1927 (99006, loan).
- R. UNIVERSITA DI TORINO, Italy: Collection comprising 241 species of Tertiary invertebrate fossils (93859, exchange).
- RUBBER ASSOCIATION OF AMERICA (INC.), New York City: 3 specimens of "Web Fabric" for tire construction, made from rubber-coated parallel cords without filling threads (100607).

- RUDGE, WILLIAM EDWIN**, New York City: A set of progressive proofs of one of Mrs. C. D. Walcott's paintings of flowers (7 specimens) and 4 specimens of "Micro-Form" printing (100169).
- RUNYON, ROBERT**, Brownsville, Tex.: Plant from Texas (101076, exchange); 33 plants (101119, 101856).
- RUSBY, Dr. H. H.** (See under Mulford Biological Exploration of Amazon Basin.)
- RUSSO, Dr. GIUSEPPE**, Moca, Dominican Republic: 3 specimens of flies from Porto Rico (99534).
- RUTH, Prof. ALBERT**, Fort Worth, Tex.: 50 plants from Texas (97366, 100723); 13 plants (97649); 131 plants from Arkansas and Texas (99100).
- SACHSE, JOHN A.**, Washington, D. C.: 10 specimens of American and British swords and a saber bayonet (98448, exchange); United States experimental bolo bayonet, model of 1900 (98824).
- ST. JOHN, Dr. HAROLD.** (See under Washington, State College of.)
- SALGUES, Dr. R.** (See under Brignoles Botanic Station, Brignoles, France.)
- SALT, Dr. GEORGE**, Boston, Mass.: 11 plants from Colombia (99346).
- SALVADOR, GOVERNMENT OF:**
Direccion General de Agricultura (through Dr. Salvador Calderon): Plant from El Salvador (97360).
- SAMPSON, Dr. EDWARD.** (See under Princeton University.)
- SANDHOUSE, Miss GRACE**, Washington, D. C.: 55 bees, representing 36 species, including trophi and genitalia slide mounts (97595).
- SARGENT, A. H.**, Bluefield, W. Va.: Arrowheads, potsherds, and other specimens collected by the donor near Ivanhoe, Va. (101878).
- SAUR, BELDEN C.**, Norwood, Ohio: 2 plants (97671, 99801).
- SCHAEFFER, CHARLES**, Brooklyn, N. Y.: Beetle (paratype) (100351).
- SCHAUS, Dr. WILLIAM**, Washington, D. C.: An ax-shaped stone image from Mexico (98030); 150 specimens of butterflies (98249); 450 butterflies from Sarayaco, Ecuador (99918).
- SCHLEMMER, CHARLES O.**, Cincinnati, Ohio: 3 sacks of washings with fossils, and a fossil coral from the Silurian rocks at Centerville, Ohio (99312).
- SCHMID, EDWARD S.**, Washington, D. C.: Specimen of bird, a hill-tit (97405); 2 birds—great blue heron and Tovi paroquet (98239); black-cheeked lovebird (99757).
- SCHMIDBAUER, Mrs. CHARLOTTE**, Budapest, Hungary: 3 Hungarian coins struck in 1926-27 (100775).
- SCHMIDT, HEINRICH**, San Jose, Costa Rica: 11 specimens of flies from Costa Rica (99286).
- SCHMITT, Dr. WALDO L.**, Washington, D. C.: Green snake from Takoma Park, Md. (98879).
- SCHOENAU, Dr. KARL VON.** (See under Bayerisches Staats-Herbarium, Munich, Germany.)
- SCHOENBERGER, PAUL**, Glacier National Park, Mont.: Examples of fossiliferous limestone carrying freshwater shells of Upper Cretaceous age (98519).
- SCHORP, J.**, Buffalo, N. Y.: 20 carte-de-visite portraits, 9 tintypes, 3 ambrotypes, and an ambrotype case (99003).
- SCHRAMM, Rev. Fr. E.**, Cabo Gracias a Dios, Nicaragua: 14 plants from Nicaragua (98219).
- SCHULTZ, Dr. A. H.**, Baltimore, Md.: Skin of a female gorilla from Belgian Congo (101355).
- SCHUPP, HOWARD**, Laurel, Md.: 2 skulls of mink (99754).
- SCOFIELD, JOHN**, Washington, D. C.: 199 eggs of ring-necked pheasant, laid in captivity (98553); Zulu ceremonial ax and Fiji club (100616, exchange).

- SCOTT, ERIC G., care Mrs. Bertha E. Jacques, Chicago, Ill.: 18 etchings for special exhibition from October 31 to November 26, 1927 (99004, loan).
- SCOTT, ESTHER W., Washington, D. C.: Nest and 4 young of a phoebe (97406).
- SCOTTISH RITE OF FREEMASONRY, SUPREME COUNCIL, SOUTHERN JURISDICTION, Washington, D. C.: Collection of anthropological, biological, geological, historical, and miscellaneous specimens from all parts of the world (97652).
- SCRIPPS INSTITUTION OF OCEANOGRAPHY, La Jolla, Calif.: Approximately 50 specimens of crustaceans taken from the stomach of a California sardine (98034); (through Dr. T. Wayland Vaughan): 207 slides of foraminifera (13 types) (99179).
- SCRIVENOR, Dr. J. B., Batu Gajah, Federated Malay States (through Interior Department, United States Geological Survey, Washington, D. C.): Examples of the new mineral thorotungstite, from Pulai, Kinta, Federated Malay States (97930).
- SCUPHOLM, T. S., Sevoonga, St. Lawrence Island, Alaska: 7 ivory and bone implements from the Eskimo of St. Lawrence Island (99524).
- SEGEL, Mrs. ESTER, Washington, D. C.: Brass mortar and pestle (101532).
- SEIWELL, H. R., Washington, D. C.: 8 specimens of commensal copepods, including the types of 2 new species (100339).
- SELS, Mrs. M. C. C. VAN LOBEN, Vorden, Calif. (through Mrs. M. Minnigerode Andrews): 2 human skulls found about 30 miles from Sacramento, Calif. (98033); human skeletal remains excavated on the donor's property, by her third son (98839).
- SENIOR, Dr. JAMES K., Chicago, Ill.: 3 specimens for the Loeb Collection of Chemical Types (98343).
- SESQUICENTENNIAL EXHIBITION ASSOCIATION, Philadelphia, Pa. (through National Sesquicentennial Exhibition Commission, Washington, D. C.): Diplomas conferring a medal of honor of the National Sesquicentennial Exposition upon the Smithsonian Institution and upon the National Museum, each accompanied by a bronze copy of the medal (97457).
- SHAMEL, H. HAROLD, Washington, D. C.: Shrew (101866).
- SHANNON, EARL V., Washington, D. C.: 6 specimens of minerals collected at Westfield, Mass., and Branchville, Conn., in 1918 (99037); 6 fishes from the Potomac River at Chain Bridge, D. C. (101895).
- SHANNON, RAYMOND C. (See under Adolpho and Alberto Breyer.)
- SHANNON, Mr. and Mrs. RAYMOND C., Washington, D. C.: 11 frogs, 2 lizards, and 1 snake, 2 fishes and a bat; also 43 specimens of Argentine flies, comprising 28 species, of which 24 are represented by types (99758).
- SHANTUNG CHRISTIAN UNIVERSITY, Tsinan, Sung, China (through Arthur P. Jacot): 10 specimens of weevils from seeds of Albizzia in China (101105).
- SHARP & DOHME (INC.), Baltimore, Md.: 41 specimens of official pharmaceutical preparations containing iron and potassium (99602).
- SHAW, Dr. EUGENE WESLEY, Chevy Chase, Md.: 35 plants from Colombia (101045).
- SHAWINIGAN PRODUCTS CORPORATION, New York City: Series of 15 specimens showing the formation of calcium carbide, a product of the electric furnace, and derivatives obtained by catalytic processes from acetylene produced from the calcium carbide; also a framed chart showing the manner in which the

SHAWINIGAN PRODUCTS CORPORATION—Continued.

- various products are produced (97385).
- SHEAR, Dr. C. L.,** Washington, D. C.: Plant from New York (98280).
(See also under Agriculture, Department of, Bureau of Plant Industry.)
- SHELFORD, Dr. V. E.,** Urbana, Ill.: 2 crustaceans and 59 specimens of marine shells from the west coast of North America, collected by the donor (101050).
- SHERMAN, JOHN D., jr.,** Mount Vernon, N. Y.: 8 beetles (97700).
- SHIDELER, Prof. W. H.,** Oxford, Ohio: Rare trilobite from the Early Silurian of the Ohio Valley (98416); fossil crab from the Cretaceous (Ripley), Coon Creek, Tenn. (99937).
- SHINER, V. J.,** Laredo, Tex.: 13 plants from Texas (99318).
- SHOEMAKER, ERNEST,** Brooklyn, N. Y.: 4 beetles (98415).
- SHOEMAKER, Mrs. J. T.:** Massillon, Ohio: Marine shell from Florida (100618).
- SIGGERS, PAUL V.** (See under Standard Fruit & Steamship Co.)
- SILVER, JAMES.** (See under Agriculture, Department of, Bureau of Biological Survey.)
- SINGEWALD, Dr. JOSEPH T., jr.,** Baltimore, Md.: 58 lots of fossil mussels from the Upper Amazon, Peru, including the types of 4 new species of fresh-water mussels (100107).
- SINKS, Mrs. MARTHA MORRISON,** Dayton, Ohio (through L. M. Folger, Washington, D. C.): Sword, scabbard, belt, and cane presented by the British Government to Lieut. Commander George F. Morrison, United States Navy, in recognition of assistance rendered to the barque *Adieu* in 1856 (100812, loan).
- SINSHEIMER, Miss GERTRUDE,** San Luis Obispo, Calif.: 11 plants from California (101157, 101528).
- SKEELS, H. C.** (See under Agriculture, Department of, Bureau of Plant Industry.)
- SKUTCH, ALEXANDER F.,** Arlington, Md.: 32 specimens of ferns from Jamaica (100938).
- SLAVIK, Prof. F.** (See under Mineralogical Institute, Prague, Czechoslovakia.)
- SMITH, Dr. CARROLL DUNHAM,** New York City: 2 homeopathic medicine cases, containing 396 small vials of Jenichen's high-potency pills, for addition to the homeopathy collection and a copy of Smith's Homeopathic Veterinary Chart of 1875 (98944).
- SMITH, GUASAVA,** Sinaloa, Mexico: Seeds from Mexico (99954).
- SMITH, Dr. HUGH M.,** Bangkok, Siam: Miscellaneous collection of natural-history specimens comprising mammals, birds, reptiles, mollusks, crustaceans, and other invertebrates, insects, plants, and ethnological material (97076); 3 plants from Siam (97931); 754 specimens of minute fishes and a shrimp (99742).
- SMITH, J. EDGAR.** (See under C. E. Papworth.)
- SMITH, KIRKPATRICK & CO. (Inc.),** New York City: 2 samples of garnet (so-called "jade") from South Africa (97109).
- SMITH, R. J.,** Milpitas, Calif.: 2 insects from California (96948).
- SMITH, Prof. STANLEY,** Bristol, England: Specimens (topotype); and 3 thin sections of British Silurian corals; 6 specimens of European Paleozoic corals (98995, 101134). Exchange.
- SMITH, W. F.,** Kingman, Ariz.: Examples of the mineral natrojarosite (98019).
- SMITHSONIAN INSTITUTION:**
The C. G. Lloyd Mycological Collection, consisting of about 75,000 specimens (99685); archaeological specimens from sites within 5 miles of Constanza, Santo Domingo, purchased from the natives by Dr. A. Wetmore for the Smithsonian Institution (100165); associate member's print, Brooklyn Society of Etch-

SMITHSONIAN INSTITUTION—Con.
ers, "Cornwall," by Kerr Eby
(100303). Deposit.

Bureau of American Ethnology:
Archeological and human skeletal material collected in Florida by Henry B. Collins, jr., during January and February, 1928 (99366); small collection of archeological specimens from Tennessee, secured in the spring of 1928 by Henry B. Collins, jr. (101146); potsherds collected on the surface of mounds in the vicinity of Greenville, S. C., during the spring of 1927 by Dr. J. Walter Fewkes (99553); small archeological collection purchased by the Bureau from R. W. Owen, Philadelphia, Pa. (99554); archeological and skeletal material collected by H. W. Kreiger during the late summer of 1927 in the Columbia and Snake River Valleys (Washington, Oregon, and Idaho) (99953); archeological material from two sites in Chaco Canyon, N. Mex., collected during 1927 by Dr. F. H. H. Roberts, jr. (101340); potsherds, stone, and shell objects from a shell mound near Melbourne, Fla., also collected by Doctor Roberts (101524); Atlatl spearshafts, sandals, netting, and other specimens from a cave approximately 20 miles northeast of El Paso, Tex., collected in May, 1927, by Doctor Roberts for the Museum (101525).

National Museum, collected by members of the staff: Bartsch, Paul: 2 isopods from Sugar Loaf Bar, Lake Maxinkuckee, Ind. (99797). Bassler, R. S.: 15 lots of Tertiary washings with micro-fossils from various localities along the Pacific coast (98529). Collins, Henry B., jr., and T. Dale Stewart: Approximately 1,619 items of ethnology and physical anthropology, and

SMITHSONIAN INSTITUTION—Con.
National Museum—Continued.

small lots of plants, birds, insects, mammals, echinoderms, mollusks, and marine invertebrates from various localities in Alaska (96521). Foshag, W. F. (in cooperation with Harvard University): Collections of minerals, ores, and fossils from Mexico (96703). Gidley, J. W.: Miscellaneous fossil vertebrate remains from Mebourne, Okechobee, and New Smyrna, Fla., collected in 1928 (100557). Gilmore, C. W. (in cooperation with National Academy of Sciences): Fossil footprints from the Hermit and Supai formations of the Grand Canyon National Park, Ariz (96814). Howell, A. B., and E. D. Reid: 52 fishes and a fresh-water bryozoan from the Shaw lily ponds at Kenilworth, D. C. (98051). Hrdlicka, A.: Bones of a golden eagle from an Eskimo grave in Alaska (97419). Killip, E. P.: 3 lizards from Colombia (97358). Kreiger, H. W. (under the auspices of the National Academy of Sciences): Collection of ethnological and skeletal material and a small lot of animal teeth and bones from Bonasila, Alaska, secured in Alaska during 1927, approximately 105 specimens (97209). Maloney, J. O.: 491 specimens, 5 species, of terrestrial isopods from Mississippi, Alabama, Tennessee, and Virginia (98998). Miller, Gerrit S., jr.: Mammals, birds, reptiles and batrachians, fishes, insects, marine invertebrates, mollusks, and Indian implements from Santo Domingo (100129). Pohl, Erwin R.: Approximately 10,000 specimens of invertebrate fossils from the Devonian and Mississippian rocks of Michigan and 1,000 specimens from the Ordovician, Devonian, and Mississippian of

SMITHSONIAN INSTITUTION—Con.

Ontario (99360). Resser, Charles E., and R. S. Bassler: Approximately 1,600 specimens of Cambrian, Ozarkian, Canadian, and Silurian fossils from the Rocky Mountain region of the United States and British Columbia (99752). Rose, J. N.: 3 land shells from Texas (99034). Schmitt, Waldo L.: 300 specimens of marine invertebrates, mostly crustacea, collected by him in 1918 at La Jolla, Calif.; approximately 160 marine invertebrates and 2 fishes collected by him at Chesapeake Beach, Md.; approximately 200 aquatic invertebrates collected from the filter beds at the Washington Filtration Plant; also a collection of mollusks and fishes (97462, 97887, 97940). Shoemaker, C. R.: Approximately 100 specimens of fresh-water oligochaete worms from an aquarium; fresh-water bryozoan taken from a fish pond at Lakeland, Montgomery County, Md. (98013, 98014). Standley, Paul C.: 9,000 plants, skull of a tapir, frog, and a small lot of land shells from Honduras (99453). Watkins, W. N., and Edward A. Avery: 20 trunk sections of 4 species of native trees from Bush Hill, Fairfax County, Va. (99345). Watkins, W. N.: 3 pieces of true boxwood (100038).

National Museum, obtained by purchase: Dry point etching, original etching, Herkomergraph, and a soft ground, possibly with aquatint (101885); a small observation beehive arranged to show the honeycomb (97433); 100 plants from Trinidad (100333); 110 plants from Europe (100299); mastodon tooth from Tennessee (98863); 42 specimens of Hawaiian plants (101370); 2,500 plants

SMITHSONIAN INSTITUTION—Con.

National Museum—Continued.

from Haiti (99951); 598 plants from Haiti (98468); 40 brachyuran crabs and 10 hermit crabs from Haiti (99276); Tlinkit carved wooden pipe, very old, from the collection of the late Capt. Frederic Forsyth (97396); 84 plants from British Guiana (100227); Morocco-sheepskin leather bag for carrying meal, from Tibet; pair of brass earrings from Miad, and a tiger claw scratcher from Szechuen, western China (98010); 50 specimens of mosses (Fascicles 4 and 5, North American Musci Perfecti) (99566); 244 plants from Uruguay (97363); 210 plants from Uruguay (100311); 110 photographs of type specimens of plants in the Kew Herbarium (100494); 25 specimens of mosses (99560); 3 bronze medals commemorating, respectively, the completion of the Delaware River Bridge, 1926; the centennial anniversary of the Baltimore & Ohio Railroad Co., 1927, and the New York to Paris airplane flight of Charles A. Lindbergh, 1927 (97871); 25 specimens of lichens (97351); 54 plants from Ecuador (100344); 72 plants from Panama (98182); 2 tree frogs from Bolivia (101322); 8 female gorilla skulls (99336); 64 skeletons of birds from Kamerun, West Africa (97450); 44 skeletons of birds from Kamerun, West Africa (100801); fossil marine lizard from Logan County, Kans. (97258); bear skull (100229); fossil horse from the Miocene beds of Wyoming (98496); 3 frogs from China (97407); 100 plants from Argentina (99141); 84 isopods, mostly European (98740); 35 specimens of fossil fish and in-

SMITHSONIAN INSTITUTION—Con.
National Museum—Continued.

vertebrates from the Jurassic of Eichstatt, Bavaria (101897); skeleton of an ivory-billed woodpecker (100800).

National Museum, made in the Museum laboratories: 3 colored plaster casts of an Eskimo lamp from southeastern Alaska, the original of which is in the Library and Museum, Juneau, Alaska (98835); 3 colored plaster casts of an Eskimo stone ax found near Ruby, Alaska, the original of which is in the Alaska Agricultural College and School of Mines, College, Alaska (99744); 3 colored plaster casts each of 3 inscribed ivory objects of the Eskimo of Alaska, the originals of which are in the Alaska Agricultural College and School of Mines, College, Alaska (99780); 4 casts of a shell ornament found in Virginia (99943); models, for an exhibit entitled "Story of the Map," comprising early concepts of the world, as follows: Earliest recorded, Hindoo, Greek, and Persian; also a surveying tower and a cross staff navigating instrument (6 specimens) (101867); 6 casts of the upper portion of a stone pestle from Middleboro, Mass. (101879).

National Zoological Park: Egg of white-necked crane (97454); 65 birds (97565, 97912, 98832, 99489, 100954); 36 mammals (98012, 98432, 99568, 100007, 100209); egg of California vulture and 5 of the Araucanian fowl (101607); skin and skull of a palm-civet cat, skin and skeleton of a monkey, monkey (alcoholic), and 3 warthogs (102017).

SMITHSONIAN-CHRYSLER EXPEDITION, Dr. William M. Mann, director: 3 flies from Africa (99152).

SNIDER, G. L., Washington, D. C. (through Dr. Frederick V. Coville): Plant (101149).

SNYDER MANUFACTURING CO. (INC.), HOMER P., Little Falls, N. Y. (through Edward H. Teall, president): Bicycle incorporating all improvements to date (1927), and received as the latest phase of a series now on exhibition in the Museum (99530).

SOCIETY FOR VISUAL EDUCATION, THE, Chicago, Ill.: 7 films on health subjects for use in the automatic delineascope (98717).

SOUTH AFRICAN MUSEUM, Cape Town, South Africa: 7 stone age implements from South Africa (101485).

SOUTH DAKOTA STATE COLLEGE, Brookings, S. Dak.: 8 specimens of flies from Wind Cave, S. Dak. (99163).

SOUTH, FRANK, Los Angeles, Calif.: 2 plants (100042, exchange).

SOUTHERN CALIFORNIA, UNIVERSITY OF, Los Angeles, Calif. (through Dr. A. B. Ulrey): Approximately 252 specimens of marine invertebrates from California (100940); approximately 475 specimens of crustaceans, together with about 10 worms and tubes (101831).

SOUTHERN RAILWAY SYSTEM, Development Service, Washington, D. C. (through E. F. Kennedy): 56 specimens of woods from the Southern States, formerly exhibited at the Paris Exposition of 1900 (97390).

SPARGO, JOHN. (See under Vermont Historical Society.)

SPENCE, GEORGE C., Ellerslie, Poplar Grove, Brooklands, Cheshire, England: Cotype of a mollusk (98548, exchange).

SPENCER LENS CO., Buffalo, N. Y.: Automatic delineascope with display cabinet for projecting educational health films (98277); 18 films on health subjects for use in the automatic delineascope (98417).

- SPRATT, J. J.**, Yakima, Wash.: 4 dentalium shells and 2 copper beads (97783).
- SPRINGER, Dr. FRANK** (deceased): The Frank Springer collection of fossil echinoderms and the library relating to the same (99038).
- SPROAT, W. R.**, Unalaska, Alaska: Human skull from Alaska (100935).
- SPRUILL, Miss GEORGIA M.**, Washington, D. C.: 8 lantern slides (101534, loan).
- SQUIBB, E. R., & SONS**, New York City: 7 specimens of iron and potassium salts used in medicine (98300).
- STANDARD FRUIT & STEAMSHIP CO.**, La Ceiba, Honduras, Central America (through Paul V. Siggers, Entomologist, Research Department): 9 specimens of flies from Honduras (101018).
- STANFORD UNIVERSITY**, Stanford University, Calif. (through Prof. Le Roy Abrams): 157 plants (100354); plant (101093). Exchange.
- STANSCH, Sr. CARLOS**. (See under Mexico, Government of, Direccion Forestal y de Casa y Pesca, Mexico, Mexico.)
- STANSFIELD, JOHN M.**, Tampa, Fla.: Specimen of cultivated plant (100350).
- STANTON, Dr. T. W.** (See under Dr. Roy D. McLellan.)
- STAPLES, B. I.**, Coolidge, N. Mex.: 2 human skeletons from an early Pueblo burial on the ranch of the donor (99168).
- STATE AGRICULTURAL COLLEGE**, Fort Collins, Colo.: 7 specimens of flies (101291).
- STATE, DEPARTMENT OF:**
Album, flag, and bronze medal presented to the President of the United States by the City of Antwerp in recognition of the services rendered by the American nation to Belgium and Antwerp during the World War, 1914-1918 (100206).
- STATE PLANT BOARD OF MISSISSIPPI**, Agricultural and Mechanical College, Mississippi (through Prof. R. W. Harned): Centipede, hairworm, and approximately 30 isopods from Mississippi (97389, 97876, 98873).
- STATES, CHARLES G.**, Cedaredge, Colo. (through A. G. McCall), Washington, D. C.: Fossil leaf (101311).
- STATION BOTANIQUE DE BRIGNOLES**, Brignoles, France: 6 packets of seeds (100167); 28 packets of seeds from Brignoles, France (101086, exchange).
- STEARNS, ARTHUR L.**, New York City: Daguerreotype portrait of a young woman (100609); 140 early American bookplates for special exhibition during July, 1928 (101847, loan).
- STENE, A. E.** (See under Rhode Island State College.)
- STEPHENS, Prof. T. C.**, Sioux City, Iowa: 962 miscellaneous insects, mostly spiders, collected in Iowa (90785).
- STEPHENSON, L. W.** (See under Venezuela Gulf Oil Co.)
- STEVENSON, JOHN A.** (See under Agriculture, Department of, Bureau of Plant Industry.)
- STEWART, T. DALE**. (See under Smithsonian Institution, National Museum, collected by members of the staff; Henry B. Collins, jr.)
- STOKES, I. N. PHELPS**, New York City: 1,361 specimens of photographic plates and prints produced by Eadweard Muybridge in his work on motion pictures (98473).
- STONER, D. G.**, Brevard, N. C. (through Pearson & Crain Co.): 2 specimens of fuchsite from North Carolina (98021).
- STOUT, E. W.**, Sticklelyville, Va.: Hairworm (97551).
- STRINGHAM, EMERSON**, Washington, D. C.: Collection consisting of fossil invertebrates, insects, mollusks, and marine invertebrates (97999).

- STUDHALTER**, Prof. R. A. (See under Texas Technological College.)
- STURDEVANT**, GLEN E., Grand Canyon, Ariz.: 2 slabs of fossil footprints from the Grand Canyon National Park, collected by the donor (97130); plant from Arizona (97787); packet of seeds (98283); 2 plants and 1 photograph of a plant (100791); 4 specimens of ferns from Grand Canyon National Park, Ariz. (101288); 4 burro skulls (101843).
- SULLIVAN**, Prof. J. M., Jackson, Miss.: 500 specimens of Eocene bryozoans and washings from Jackson, Miss. (97929); approximately 1,000 specimens of Eocene and Oligocene bryozoa and mollusca from Mississippi (99753).
- SWALES**, B. H., Washington, D. C.: 56 birds from Argentina, Bolivia, and Uruguay (97694); 4 bird skins of 4 species, 3 of which are new to the Museum (97913); 11 bird skins from Africa, representing 11 species and a genus new to the Museum collections (98494); skin of a lark, new to the Museum collections (99133); 5 bird skins, representing 5 species, 3 of which are new to the Museum collections (99570).
- SWALES FUND**, Smithsonian Institution: 2 specimens of birds representing a genus and species new to the Museum collections (100448); 2 birds, 2 species, new to the Museum collections (101845).
- SWEARINGEN**, E. O., High Bridge, N. J.: Specimen of worm (97108).
- SWEETT**, Mrs. S. J., New Smyrna, Fla.: Fragmentary bones of an extinct species of deer, and 3 teeth of an extinct species of horse from New Smyrna, Fla. (96986).
- SWENK**, Prof. M. H., Lincoln, Nebr.: 2 flies (98986).
- SWINGLE**, Dr. WALTER T. (See under Prof. H. Humbert, Agriculture, Department of, Bureau of Plant Industry.)
- SYDOW**, H. Berlin, W., Germany: 34 specimens of fungi from Costa Rica; also 19 specimens of phanerogams from Venezuela (101016).
- TABER**, W. B., jr., Kansas, Ill.: Fly (98518).
- TALBOT**, Miss M., Lacock Abbey, Wilts, England (through Marcus Adams, London, England): 73 specimens of Henry Fox Talbot's work relating to photography and photo-engraving (100963).
- TANAKA**, Prof. TYOZABURO. (See under Miyazaki School of Agriculture.)
- TANNERS' COUNCIL OF AMERICA (INC.)**, New York City. (See under American Hair Felt Co.)
- TATEN**, P. E., Fort Myers, Fla.: Shell chisel from a mound on the property of the donor on the banks of the Caloosahatchee River, Fla. (101317).
- TATTERSALL**, Prof. WILLIAM M., Cardiff, Wales: 29 specimens, 8 species, of crustaceans from Tasmania and Australia (97614).
- TAUNAY**, Dr. AFFONSO DE E., Sao Paulo, Brazil: Specimen of the dwarf tinamou, a rare bird, from Brazil (98241).
- TAVARES**, GUSTAVO, La Paloma, Santiago, Dominican Republic: Alcoholic specimen of mammal from the vicinity of Santiago (101100).
- TAYLOR**, L. W., Camden, N. J.: 4 specimens, 2 species, of pearly freshwater mussels from Camden, N. J. (98184).
- TAYLOR**, PAUL G., Regina, Saskatchewan, Canada: 2 specimens of ferns from China (99480).
- TAYLOR**, Mrs. WILLIAM LADD, Wellesley, Mass.: Prints from paintings by W. L. Taylor, illustrating scenes in American history (17 specimens) (99664).
- TAYLOR**, Dr. WILLIAM RANDOLPH, Philadelphia, Pa.: Specimen of fern (98827).
- TEACHENOR**, DIX, and C. D. BUNKER, Kansas City, Mo.: Specimen of water ouzel from New Mexico (97679).
- TEALL**, EDWARD H. (See under Homer P. Snyder Manufacturing Co. (Inc.).)

- TEILING, Miss NETTIE M.**, Washington, D. C.: Small single-shot percussion pistol of the period of the Civil War (97778).
- TELLO, Dr. JULIO C.**, Lima, Peru: Miniature pottery bottle and globular gold bead from Peru (101526).
- TERRY, Dr. R. J.** (See under Washington University, St. Louis, Mo.)
- TEXAS TECHNOLOGICAL COLLEGE**, Lubbock, Tex. (through Prof. R. A. Studhalter): Approximately 25 specimens of phyllopods from Texas (96633).
- TEXAS, UNIVERSITY OF**, Department of Botany, Austin, Tex. (through E. R. Bogusch): 126 plants (97640); 35 plants from Texas (98749); 16 plants from Texas, collected by Prof. B. C. Tharp (97936); 24 plants (98070).
- THAXTER, Prof. ROLAND.** (See under Farlow Herbarium, Cambridge, Mass.)
- THAYER, W. N.**, Oneida, N. Y.: Six-legged frog (98359).
- THELLUNG, Prof. A.**, Zurich, Switzerland: 6 plants (101160).
- THERIOT, I.**, Fontaine-la-Mallet par Montivilliers (S.-I.), France: 6 specimens of mosses (99293).
- THOMPSON, Miss FLORENCE**, Falls Church, Va.: Flying squirrel (102018).
- THOMPSON, JOHN W.**, Salem, Oreg.: 51 specimens of ferns from Oregon (99090).
- THOMSON, H. S.**, New York City: Documents concerning the manufacture of lead-covered telegraph wire in 1843 by James E. Serrell for Prof. S. F. B. Morse and 3 specimens of such wires (98291).
- THORNER, Prof. J. J.**, Tucson, Ariz.: 18 plants from Arizona (100947, exchange).
- THORNE, Miss DIANA**, New York City: 50 dry-point etchings for special exhibition from April 23 to May 20, 1928 (100969, loan); 12 dry-point etchings the work of the donor (101550).
- THORNE, D. C.**, Santa Rita, N. Mex.: 2 specimens containing crystals of muscovite pseudomorph after (?) scapolite (100818).
- TIMES-MIRROR PRINTING & BINDING HOUSE**, Los Angeles, Calif. (through W. Irvin Brennan): Book entitled "Twelve Good Men and True," a fine example of book-making (100568).
- TOMKINS, IVAN R.**, Savannah, Ga.: Small collection of fossil bones and teeth dredged from the bottom of the Savannah River (97254); miscellaneous fossil bones and teeth also dredged from the bottom of the Savannah River (100570).
- TORRE, CARLOS DE LA**, Habana, Cuba: 185 lots of mollusks, mostly types of new land shells of the family Anulariidae (98700).
- TREASURY DEPARTMENT:**
Bureau of the Mint: 80 specimens of ancient and modern coins (97777); United States gold, silver, nickel, and bronze coins struck in 1927 (40 specimens) (100601); silver medal struck at the Imperial Mint, Osaka, Japan, in commemoration of the fifty-sixth anniversary of the inspection of pyx coins (100951); 167 specimens of ancient and modern coins (101859).
Public Health Service, Washington, D. C.: 2 films, "Keeping Fit" and "Youth and Life," for use in the automatic delineascope to supplement exhibits in the "Hall of Health" (98436).
- TRENCHARD, Mrs. MARY S.**, West Islip, Long Island, N. Y.: A letter signed by Rear Admiral Robert E. Peary, United States Navy, and a certificate of membership of Edward Trenchard in the General Society of the War of 1812 (101523, loan).
- TRISTAN, Prof. J. FIDELE**, San Jose, Costa Rica: Photograph of fungus from Costa Rica (98176).
 (See also under Liceo de Costa Rica.)

- TROPICAL PLANT RESEARCH FOUNDATION**, Washington, D. C. (through Dr. W. A. Orton, director and general manager): 3 plants from Cuba (100213).
- TROVINGER, RAYMOND**, Hagerstown, Md.: 9 bird skins from Maryland (99940).
- TRUEMAN, Miss MARY E.**, Germantown, Philadelphia, Pa. (through Mr. Frank V. Chambers): 13 lantern slides of which 12 are animated, a shutter and a camera (100180).
- TRUITT, Dr. R. V.**, College Park, Md.: 5 specimens of fishes from the Patuxent River, Maryland (98266).
- TURNER, GEORGE B.**, Washington, D. C.: Purple grackle (100781).
- UDE, LOUIS C.**, New York City: Panel of heavy leather on which has been developed by the donor, in flat hand tooling, an enlarged copy of Albrecht Durer's wood cut, "The Four Horsemen of the Apocalypse," made in 1498 (101075).
- ULKE, TRUS**, Washington, D. C.: 122 specimens of miscellaneous insects, 8 shells, 140 plants; also a small collection of lichens as exhibition accessories (96158).
- ULREY, Dr. A. B.** (See under Southern California, University of.)
- ULRICH, Dr. E. O.** (See under A. Franke.)
- UNDERWOOD & UNDERWOOD**, Washington, D. C.: 3 photographs illustrating the trans-Atlantic flight of Commander Richard E. Byrd and his companions from Roosevelt Field, Long Island, to Sur-le-Mer, France, July 1, 1927 (97920).
- UNDERWOOD, Mrs. W. E.**, Sparrows Point, Md.: Sampler of hand-weaving, made by the donor, in two variations of the old coverlet weave known as the John Landis pattern (101841).
- UNIVERSITETETS BOTANISKE MUSEUM**, Copenhagen, Denmark: 287 plants (96989, 100598, 101345); 3 fragmentary specimens of ferns from Bolivia (98046); specimen of fern (99557); 212 plants from Costa Rica and Mexico (99576); 66 specimens of ferns collected in Hispaniola by E. L. Ekman (100211). Exchange.
- URBAN, Dr. I.** (See under Botanischer Garten und Museum, Berlin-Dahlem, Germany.)
- UTAH AGRICULTURAL COLLEGE**, Logan, Utah (through George F. Knowlton): fly (96090).
- VALERIO, Sr. Prof. MANUEL**, San Jose, Costa Rica, Central America: 108 specimens of ferns from Costa Rica (97347, 97796, 97897, 98201, 98230, 99790); 6 orchids from Costa Rica (97364); 259 plants from Costa Rica (97455, 97782, 98072, 98275, 98507, 98744, 99157); 9 specimens of crustaceans from Costa Rica (97899, 98419); crab and sea shell from Costa Rica (98057); shrew (98225); approximately 69 specimens of marine and land shells, mostly from the west coast of Costa Rica (98475); 2 crabs from Costa Rica (98823); 2 frogs, 1 salamander, 2 lizards; also 4 specimens of mollusks (99007); crab, 2 lizards, and 4 plants from Costa Rica (99143); 56 specimens of land, fresh-water, and marine shells, mostly from the west coast of Costa Rica (99298); fly from Tucurrique, Costa Rica (99300); 3 orchids, a spiny lobster, 21 specimens of insects, and a group of egg cases of a mollusk(?) from Costa Rica (99508); 15 plants and 16 insects from Costa Rica (99525); 2 frogs from El Tablazo, Costa Rica (100059); 16 specimens, 4 species, of land and fresh-water shells, 1 sea urchin, and 4 specimens of ferns from Costa Rica (100193); (through Edwin B. Bartram, Bushkill, Pa.): 46 specimens of mosses from Costa Rica (100729, 101095, 101842); marine shell, land shell, approximately 15 specimens of coccids, specimen of an alga, 2 salamanders, and a collection of marine invertebrates from

- VALERIO, Sr. Prof. MANUEL—Contd.
Central America (97792); bat (101379).
- VAN HAITSMAN, J. P., Grand Rapids, Mich.: Slide of a parasitic trematode from the American merganser (101055).
- VAN HYNING, T. (See under Florida State Museum.)
- VAN TYNE, J., Ann Arbor, Mich.: 2 specimens of plants from Panama (99294).
- VAUGHAN, Dr. R. E., Royal College, Mauritius: 46 specimens of ferns from Mauritius (97655, 97795).
- VAUGHAN, Dr. T. WAYLAND. (See under Scripps Institution of Oceanography.)
- VAUPEL, E. H., Cincinnati, Ohio: Approximately 500 fossil invertebrates from the Early Silurian rocks of southwestern Ohio (99310); approximately 500 specimens of Silurian invertebrates from Centerville, Ohio (101483).
- VENEZUELA GULF OIL CO., New York City (through L. W. Stephenson): Collections of Tertiary fossils from four localities in Venezuela (97415).
- VERMONT HISTORICAL SOCIETY, Montpelier, Vt. (through Mr. John Spargo, President): Bronze replica of the George F. Edmunds medal issued by the Vermont Historical Society (100458).
- VICK, JOHN, Bryan, Tex. (through Charles L. Baker, Houston, Tex.): 4 fossil crabs from Brazos County, Tex. (97416).
- VICTORIA, NATIONAL HERBARIUM OF, Victoria, Australia (through F. J. Rae): 75 specimens of ferns from Australia (97582, exchange).
- VINSON, Dr. A. E., Port-au-Prince, Haiti: 8 specimens of shrimp and 23 fishes, collected by the donor; also snake from Haiti (97349, 97379).
- VIOSCA, PERCY, jr., New Orleans, La.: 11 tree frogs from Louisiana (the type and 3 paratypes of 7 topotypes of a new species being described by the donor) (101360).
- VISCOSE CO., THE, Marcus Hook, Pa.: 11 specimens in a series showing the manufacture of viscose fiber from wood to finished yarn, including 2 labeled drawings of the apparatus used (98875).
- VISEL, Miss G. O., Washington, D. C.: Mourning dove (97420).
- VOGT, EVON Z., Ramah, N. Mex.: 2 lots of potsherds from prehistoric Pueblo ruins near Allentown, Apache County, Ariz. (101983).
- VON BLOEKER, JACK C., San Diego, Calif.: 100 miscellaneous insects from California (99167).
- VON ESCHEN, Prof. F., Selma, Oreg.: Marine shells (99957).
- VONSEN, M., Petaluma, Calif.: Specimens of meyerhofferite and 1 of colemanite pseudomorphous after meyerhofferite, from Inyo County, Calif. (99329).
- WAILES, G. H., Nanaimo, British Columbia, Canada: 95 specimens of euphausiids collected by the donor in British Columbia waters (98513); 54 specimens of crustaceans from Canada (99730); approximately 100 specimens of crustacean zoeae from Canada (100795).
- WALCOTT, Mrs. MARY VAUX, Washington, D. C.: Ancient ivory pick head from the western Eskimo (99555).
- WALKER, JOSEPH, Bisbee, Ariz.: 4 specimens of minerals from the Shattuck mine, Bisbee, Ariz. (98996).
- WALLIS, J. B., Winnipeg, Manitoba: 8 beetles, paratypes of 3 species (86725, exchange).
- WALTER RATHBONE BACON SCHOLARSHIP, Smithsonian Institution (through Dr. Waldo L. Schmitt): A comprehensive collection of marine invertebrates, approximately 2,432 specimens, comprising crustaceans, coelenterates, annelid worms, plankton, and bottom samples, together with a collection of echinoderms, mollusks, insects, fishes, a mammal skull, birds, bird eggs, fossils, and algae, collected by Doctor Schmitt in South America (97902).

- WANNER, A. M., Gretna, Pa.: Collection of fossil plants from the Triassic of York County, Pa., described and figured in the Twentieth Annual Report of the United States Geological Survey (97938).
- WAR DEPARTMENT:
- Air Corps*: Curtiss Army racer airplane, No. 43, victor in the Pulitzer and Schneider Races of 1925 (95704); Loening amphibian airplane, the "Good Will" Pan-American flyer, "San Francisco" (96998); 2 photographic enlargements showing the Army Curtiss racer, No. 43, 1925, as a land plane and as a sea plane, with their respective pilots (97919); parts of Capt. Hawthorne C. Gray's balloon, aerostatic instruments, and testimonials regarding its performance on November 4, 1927, when it carried its operator to an elevation of approximately 8 miles, the greatest height ever attained by man (100554).
- Ordnance, office of the chief of*: A heavy barrel special target rifle of Springfield Armory manufacture (98267).
- Quartermaster General, office of the chief of*: United States military badges of the type worn by observers, flying instructors, and aviators (101297).
- WARD, Melbourne, Sydney, New South Wales, Australia: 20 crabs and 2 hermit crabs from Cuba (97886); 4 crabs from the Barrier Reef of Australia, collected by the donor in November and December, 1927 (100941).
- WARD'S NATURAL SCIENCE ESTABLISHMENT, Rochester, N. Y.: Slice weighing 3,274 grams of the Younegin, Australia, meteoric iron (98997); approximately 1,000 specimens of fossil invertebrates from the Mesozoic and Cenozoic of France and Belgium (100044); 3 specimens of a Carboniferous trilobite from near Wichita, Kans. (100174). Exchange.
- WASHINGTON, Prof. HENRY S., Washington, D. C.: 27 specimens of geological material, including types (99118).
- WASHINGTON, W. LANIER, Wakefield, Westport, Conn. (through C. A. Hoppin): Oil portrait of Mary Ball Washington and an oil painting showing General Washington reviewing troops (101860, loan).
- WASHINGTON, STATE COLLEGE OF, Pullman, Wash. (through Dr. Harold St. John): 6 plants (99108, 99370, 99950, 101148). Exchange.
- WASHINGTON UNIVERSITY, St. Louis, Mo. (through Dr. R. J. Terry): 11 skulls of white females (100714, exchange).
- WATERSTON, Dr. JAMES. (See under British Government, British Museum (Natural History).)
- WATSON, J. R. (See under Florida, University of.)
- WATSON, Dr. THOMAS L. (deceased): An individual stone of the Forks-ville, Va., meteorite, weighing 1,850 grams (93872).
- WEATHERBY, C. A., Hartford, Conn.: 31 plants from Connecticut (100953).
- WEAVER, DARWIN, Washington, D. C.: Serape collected by the donor in Saltillo, Mexico, in 1869 (99745).
- WEBB, Capt. T. W., Lake Placid, Fla.: Insect known as a whip scorpion from Florida (98465); cockroach (98821); parasitic isopod from throat of a sand perch, Old Tampa Bay, Fla. (100740); rare form of roach collected in Florida (101591).
- WEIL, Mrs. L. R., Montgomery, Ala.: 11 specimens of snails from Montgomery, Ala. (99173).
- WEILLS, ISAAC M., Vero Beach, Fla. (through Mrs. Isaac M. Weills): Collection of coins, tokens, and postage stamps (99854).
- WEISKER, CHARLES, New York City: 22 specimens of feather fancies, showing how the plumage of domesticated fowl can be used in place of feathers of birds banned by the Lacey Act (99132).

- WELCH, D'ALTE ALDRIDGE**, Baltimore, Md.: 7 land shells, 2 species, from eastern Cuba (100352).
- WELLING, RICHARD W. G.**, New York City: Silver sugar tongs owned during the War of the Revolution by Maj. Gen. Nathaniel Greene, Continental Army (101424).
- WENDLER, C.**, Geneva, Switzerland: A fragment weighing 31,652 grams and 1 gram of powder of the Cincinnati, Ohio, meteoric iron (97336, exchange).
- WETMORE, Dr. A.**, Washington, D. C.: 2 eggs of Least Tern (bird) from Maryland (97463); pickerel frog from Negro Mountain, west of Grantsville, Md. (97658); skeleton of house wren from Maryland (98237); northern flicker from Maryland (98726); 3 snakes from Takoma Park, Md., and a turtle from Dickerson, Md. (99001); snow bunting from Ocean City, Md. (99783); 5 eggs of Araucanian fowl (100302); skink and 3 mollusks from North Coronado Island, Mexico (101515).
(See also under Señor Miguel Abreu.)
- WETMORE, Miss MARGARET**, Takoma Park, Md.: Long-tailed salamander from Plummer Island, Md. (99012); shrew from Cabin John (102020).
- WHARRAM, S. V.**, Ashtabula, Ohio. Fresh-water mussel from Arkansas (99354).
- WHEELER, Miss GENEVIEVE A.**, Washington, D. C.: Swords, uniforms, and documents owned by Capt. Woodbury Wheeler, Confederate States Army, 33 specimens (99695).
- WHEELER, Prof. GEORGE C.** (See under North Dakota, University of, Department of Biology.)
- WHEELER, Dr. HOMER JAY**, Boston, Mass.: Xylose for the Loeb Collection of Chemical Types (101891).
- WHELAN, DON B.** (See under Nebraska, University of.)
- WHERRY, Dr. EDGAR T.**, Washington, D. C.: 5 specimens of ferns from
- WHERRY, Dr. EDGAR T.—Continued.**
Alabama and North Carolina, and 6 plants from North Carolina (97365, 98508, 101984); small collection of Ordovician invertebrates and Triassic plants from Pennsylvania, also 1 specimen of 2 photographs of plants from Pennsylvania (97403, 98281); 3 plants from the southeastern United States (101604).
(See also under Edwin H. Lincoln.)
- WHITE CO., THE**, Cleveland, Ohio: Original steam passenger automobile, popularly called "White Stanhope," made in 1902 by the White Sewing Machine Co., and typical of this company's first automobile produced in April, 1901, Serial No. 260 (101849).
- WHITE, Dr. DAVID.** (See under Carnegie Institution of Washington.)
- WHITE, JOHN CAMPBELL**, Washington, D. C.: Mounted head of an ibex from Italy (99639).
- WHITEHEAD, J. M.**, Alva, Scotland: 35 pictorial prints for special exhibition during April and May, 1928 (100797, loan).
- WHITLOCK, EDMUND H.**, Philadelphia, Pa.: Relief map of the Glacier National Park (101601).
- WILLCOX, RUSSELL**, South Egremont, Mass. (through Commerce, Department of, Bureau of Fisheries): Spotted salamander from Massachusetts (97466).
- WILLIAMS, F. X.** (See under Hawaiian Sugar Planters Association Experiment Station.)
- WILLIS, CHARLES E.** (See under Morgan Belleek China Co., The.)
- WILLIS, Miss GEORGIE H.**, Trappe, Md.: 19 amphipods (99574).
- WILMER, E. R.** (See under Eddy-stone Cement Co.)
- WILSON, B. S.**, Tucson, Ariz. (through Mr. Frank L. Hess): Specimen of huberite from near Arivaca, Ariz. (101061).
- WILSON, JOHN S.**, Wilson, N. Y.: Tree frog (98263).

- WILSON RUBBER CO., THE, Canton, Ohio: 7 photographs illustrating steps in the manufacture of rubber gloves (98549).
- WILSON, W. R., Washington, D. C.: Osprey from Virginia (98240); American widgeon, or baldpate, from Potomac River (99572).
- WISMER, D. C., Hatfield, Pa.: Five and ten cent notes issued in 1862 by J. R. Bostwick, sutler of the Eleventh New York Cavalry (100556).
- WISTAR INSTITUTE OF ANATOMY AND BIOLOGY, THE, Philadelphia, Pa. (through Dr. M. J. Greenman): Cotype of a frog from the Loochoo Islands (101559).
- WOLCOTT, A. B., Chicago, Ill. (through Dr. E. A. Chapin): 15 miscellaneous beetles (101092).
- WOLTMAN, E., Los Angeles, Calif.: Fossil tooth of a shark from near Saugus, Los Angeles County, Calif. (99577).
- WOMACK, A., Coeur d'Alene, Idaho: Sample of bentonite from 2 miles east of Ford, Kootanai County, Idaho (97107).
- WOMACK, HENRY B., Birmingham, Ala.: Corrugating file, patented February 1, 1927, Patent No. 1616403 (98461).
- WOOD, NATHAN & VIRKUS CO., New York City: 13 specimens of raised printing, known as "Virko-type," and 7 samples of the material used (98531).
- WOODBURY, A. M. (See under Interior, Department of, National Park Service.)
- WOODHOUSE, Dr. S. W., jr., Philadelphia, Pa.: 3 photographs of Col. Samuel Washington Woodhouse (100018).
- WOODVILLE, E. J., Flat Run, Va.: Stone implement from Virginia (97520).
- WORMSBACHER, HENRY, Cleveland, Ohio: A type specimen of *Lepidoptera* (99547).
- WRIGHT, Prof. STILLMAN, Madison, Wis.: 8 microscopic slides of 2 new species of fresh-water copepods, including the holotype of each of them (100964).
- WU, CHENFU F. (See under Yenching University, Peking, China.)
- YALE UNIVERSITY, School of Forestry, New Haven, Conn. (through Prof. Samuel J. Record): 4 plants (92606, 97691); 2 plants from Guatemala (97362); 66 plants from British Honduras (97452, 98427, 98984, 101169); 255 plants from Central America (97597, 98534); 551 plants collected in Panama by V. C. Dunlap (98971); 54 plants from Panama (99114); 7 specimens of trees from Peru (99292); 49 plants from Nicaragua and Panama (100317).
- YENCHING UNIVERSITY, Peking, China (through Chenfu F. Wu): 32 specimens of crickets from China (100975).
- YGLESIAS, B. R., San Pedro Montes de Oca, Costa Rica: Plants (algae) from Costa Rica (97659).
- YONKO, PETE, Washington, D. C.: Stone celt excavated near Tulsa, Okla. (99722).
- YOUNG, ESTATE OF LIEUT. GENERAL SAMUEL B. M. (through Riggs National Bank, Washington, D. C.): Swords, uniforms, and badges owned by Lieutenant General Young, United States Army (98951).
- ZAPPULLA, FRANK S., Washington, D. C.: Copy of "Rip Van Winkle," by Washington Irving, illustrated by F. O. C. Darley, published for the members of the American Art Union, 1848 (98453).
- ZAPPULLA, Mrs. JENNIE B., Washington, D. C.: Cashmere shawl worn by the grandmother of the donor and believed to have been brought from France over 100 years ago (99107).

ZERNY, Dr. H. (See under Naturhistorisches Museum, Zoologisches Abteilung, Vienna, Austria.)

ZETEK, JAMES, Ancon, Canal Zone: 8 plants (97675); plant from Mexico (98251); 10 specimens of freshwater jelly fish from Gatun Lake, Canal Zone, collected by the donor (100304).

ZOOLOGISCHES MUSEUM, Berlin, Germany: Skin of a bird new to the

ZOOLOGISCHES MUSEUM—Contd.

Museum collections (100717); (through Dr. Felix Roch): 9 species of shipworms (100967). Exchange.

ZOOLOGISCHE SAMMLUNG DES BAYERISCHEN STAATS, Munchen, Germany: 2 lizards from Tibet (paratypes) (99909, exchange).

THE UNIVERSITY OF CHICAGO
DIVISION OF THE PHYSICAL SCIENCES

REPORT OF THE
COMMISSIONERS OF THE
LAND OFFICE
FOR THE YEAR
1887

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LIST OF PUBLICATIONS ISSUED BY THE UNITED STATES NATIONAL MUSEUM DURING THE FISCAL YEAR 1927-28

REPORT

Report on the progress and condition of the United States National Museum for the year ended June 30, 1927.

8vo., pp. i-ix, 1-221, frontispiece.

PROCEEDINGS

Proceedings of the United States National Museum. Volume 68.

8vo., pp. i-xvii, 1-758, arts. 1-25, pls. 1-63, 56 figs.

Proceedings of the United States National Museum. Volume 69.

8vo., pp. i-xii, 1-659, arts. 1-23, pls. 1-59, 36 figs., 3 tables.

Proceedings of the United States National Museum. Volume 70.

8vo., pp. i-xiii, 1-717, arts. 1-23, pls. 1-45, 24 figs.

BULLETINS

No. 100, vol. 7. Contributions to the biology of the Philippine Archipelago and adjacent regions. The fishes of the families Pomacentridae, Labridae, and Callyodontidae, collected by the United States Bureau of Fisheries steamer *Albatross*, chiefly in Philippine seas and adjacent waters. By Henry W. Fowler and Barton A. Bean.

8vo., pp. i-viii, 1-525, pls. 1-49.

No. 141. Collection of heating and lighting utensils in the United States National Museum. By Walter Hough.

8vo., pp. i-viii, 1-113, pls. 1-99.

No. 142. Life histories of North American shore birds. Order Limicolae (part 1). By Arthur Cleveland Bent.

8vo., pp. i-ix, 1-420, pls. 1-55.

No. 143. Biological and taxonomic investigations on the Mutillid wasps. By Clarence E. Mickel.

8vo., pp. i-ix, 1-351, pls. 1-5, 28 figs.

No. 144. The American bats of the genera *Myotis* and *Pizonyx*. By Gerrit S. Miller, jr., and Glover M. Allen.

8vo., pp. i-viii, 1-218, pl. 1, 1 fig., 13 maps.

CONTRIBUTIONS FROM THE UNITED STATES NATIONAL HERBARIUM

Vol. 27. Flora of the Panama Canal Zone. By Paul C. Standley.

* 8vo., pp. ix, 1-416, frontispiece, pls. 1-66, 7 figs.

PAPERS PUBLISHED IN SEPARATE FORM

FROM THE BULLETINS

From No. 76. Asteroidea of the North Pacific and adjacent waters. Part 2. Forcipulata (part). By Walter Kenrick Fisher.

Ry. 8vo., pp. 1-iii, 1-245, pls. 1-81, 3 figs.

From No. 100. Contributions to the biology of the Philippine Archipelago and adjacent regions.

Volume 6, part 4: Report on the Echinoidea collected by the United States Fisheries steamer *Albatross* during the Philippine expedition, 1907-1910.

Part 1: The Cidaridae. By Theodor Mortensen. 8vo., pp. i-iii, 243-312, pls. 48-80, figs. 1-22.

FROM VOLUME 71 OF THE PROCEEDINGS

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| <p>No. 2685. A revision of the Cottoid fishes of the genus <i>Ardetiellus</i>. By Peter Schmidt. Art. 13, pp. 1-10.</p> <p>No. 2686. A new type of caddis case from the Lower Eocene of Tennessee. By Edward W. Berry. Art. 14, pp. 1-4, pl. 1.</p> <p>No. 2687. On fossil turtles from the Pleistocene of Florida. By Charles W. Gilmore. Art. 15, pp. 1-10, pls. 1-5, figs. 1-4.</p> <p>No. 2688. Some peculiar fossil forms from Maryland. By Wendell C. Mansfield. Art. 16, pp. 1-9, pls. 1-5.</p> <p>No. 2689. The Maskell species of scale insects of the subfamily <i>Asterolecaniinae</i>. By Harold Morrison and Emily Morrison. Art. 17, pp. 1-67, pls. 1-29.</p> <p>No. 2690. The geology, petrography, and mineralogy of the vicinity of Italian Mountain, Gunnison County, Colorado. By Whitman Cross and Earl V. Shannon. Art. 18, pp. 1-42, pls. 1, 2, figs. 1-17.</p> | <p>No. 2691. The American moths of the genus <i>Diatraea</i> and allies. By Harrison G. Dyar and Carl Heinrich. Art. 19, pp. 1-48, pls. 1-20.</p> <p>No. 2692. <i>Pycnodesma</i>, a new molluscan genus from the Silurian of Alaska. By Edwin Kirk. Art. 20, pp. 1-9, pls. 1, 2.</p> <p>No. 2693. A recently found iron meteorite from Oakley, Idaho. By George P. Merrill. Art. 21, pp. 1-3, pls. 1, 2.</p> <p>No. 2694. A new nematode, <i>Nematodirus antilocaprae</i>, from the prong-horn antelope, with a key to the species of <i>Nematodirus</i>. By Emmett W. Price. Art. 22, pp. 1-4, pl. 1.</p> <p>No. 2695. A fossil insect from the Lower Permian of the Grand Canyon. By Frank M. Carpenter. Art. 23, pp. 1-4, pl. 1.</p> <p>No. 2696. Catalogue of human crania in the United States National Museum collections. Australians, Tasmanians, South African Bushmen, Hottentots, and Negro. By Ales Hrdlicka. Art. 24, pp. 1-140.</p> |
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FROM VOLUME 72 OF THE PROCEEDINGS

- No. 2697. Description of *Ancylostoma pluridentatum*, a hook-worm of Carnivores, and a review of the genus *Ancylostoma*. By Benjamin Schwartz. Art. 1, pp. 1-9, figs. 1-6.
- No. 2698. Undescribed crane flies from the Holarctic region in the United States National Museum. By Charles P. Alexander. Art. 2, pp. 1-17, pl. 1.
- No. 2699. New species of mollusks of the genus *Corbicula* from Uruguay and Brazil. By William B. Marshall. Art. 3, pp. 1-7, pl. 1.
- No. 2700. Heretofore undescribed meteoric irons from (1) Bolivia, South America, (2) Western Arkansas, and (3) Seneca Township, Michigan. By George P. Merrill. Art. 4, pp. 1-4, pls. 1, 2.
- No. 2701. A bibliography of the conodonts with descriptions of early Mississippian species. By Grace B. Holmes. Art. 5, pp. 1-38, pls. 1-11.
- No. 2702. Insects of the subclass Apterygota from Central America and the West Indies. By J. W. Folsom. Art. 6, pp. 1-16, pls. 1-8.
- No. 2703. Redescription of types of American muscoid flies in the collection of the Vienna Natural History Museum, with incidental notes. By J. M. Aldrich. Art. 7, pp. 1-35, figs. 1-3.
- No. 2704. New parasitic Hymenoptera of the subfamily Ateoninae from the Americas. By F. A. Fenton. Art. 8, pp. 1-16, pls. 1, 2.
- No. 2705. New species of two-winged flies of the family Cyrtidae, with a new genus from the Philippines. By J. M. Aldrich. Art. 9, pp. 1-4, figs. 1, 2.
- No. 2706. Additions to the Upper Cretaceous invertebrate faunas of the Carolinas. By Lloyd W. Stephenson. Art. 10, pp. 1-25, pls. 1, 9.
- No. 2707. Rossite and Metarossite; two new vanadates from Colorado. By William F. Foshag and Frank L. Hess. Art. 11, pp. 1-12, figs. 1, 2.
- No. 2708. Crystalline carnotite from Utah. By Frank L. Hess and William F. Foshag. Art. 12, pp. 1-6.
- No. 2709. Miscellaneous notes and descriptions of Ichneumon flies. By R. A. Cushman. Art. 13, pp. 1-22; figs. 1, 2.
- No. 2710. Fossil and recent bryozoa of the Gulf of Mexico region. By Ferdinand Canu and Ray S. Bassler. Art. 14, pp. 1-199, pls. 1-34, figs. 1-35.
- No. 2711. The Australian land shell, *Thersites bipartita* and its allies. By William B. Marshall. Art. 15, pp. 1-16, pls. 1-3.
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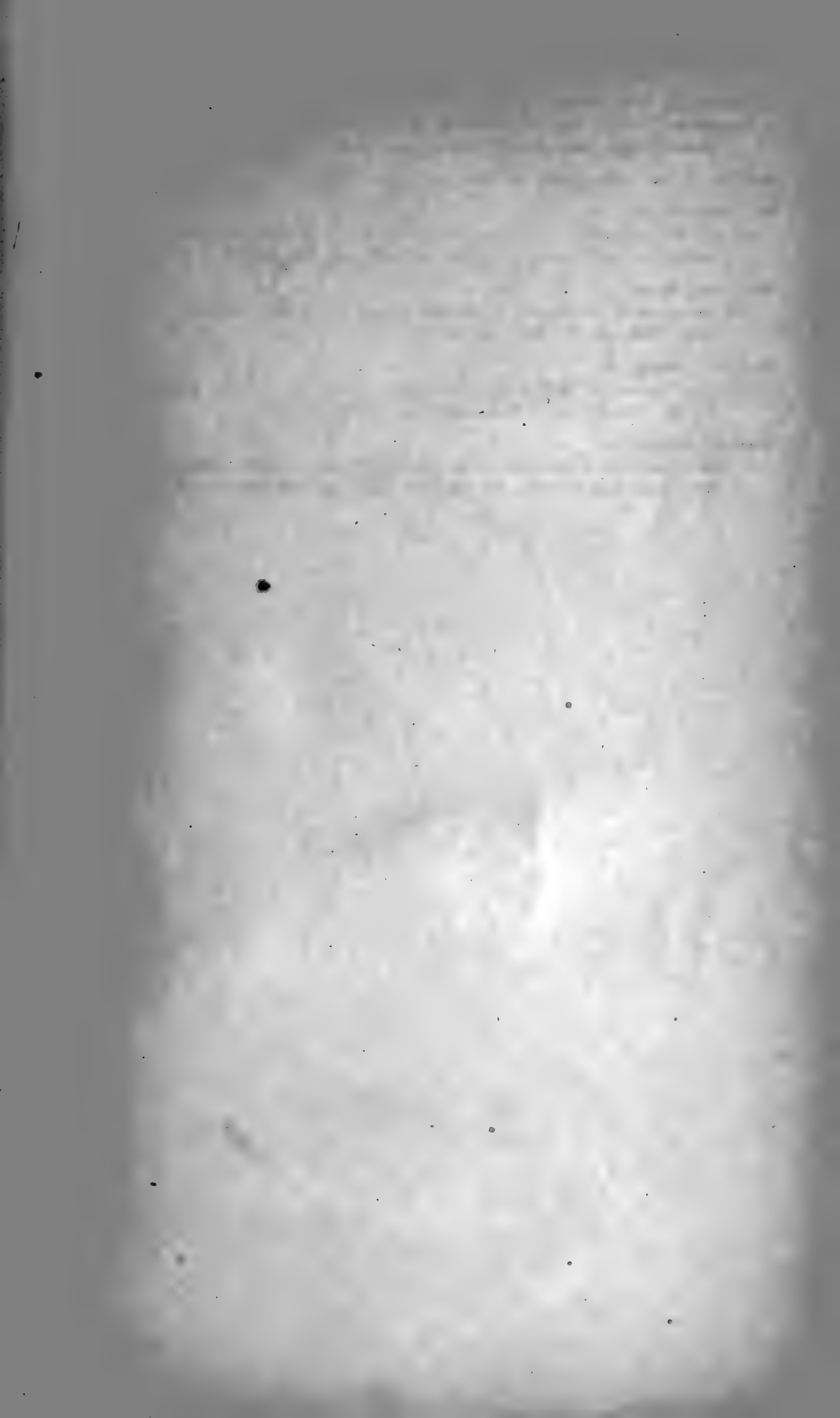
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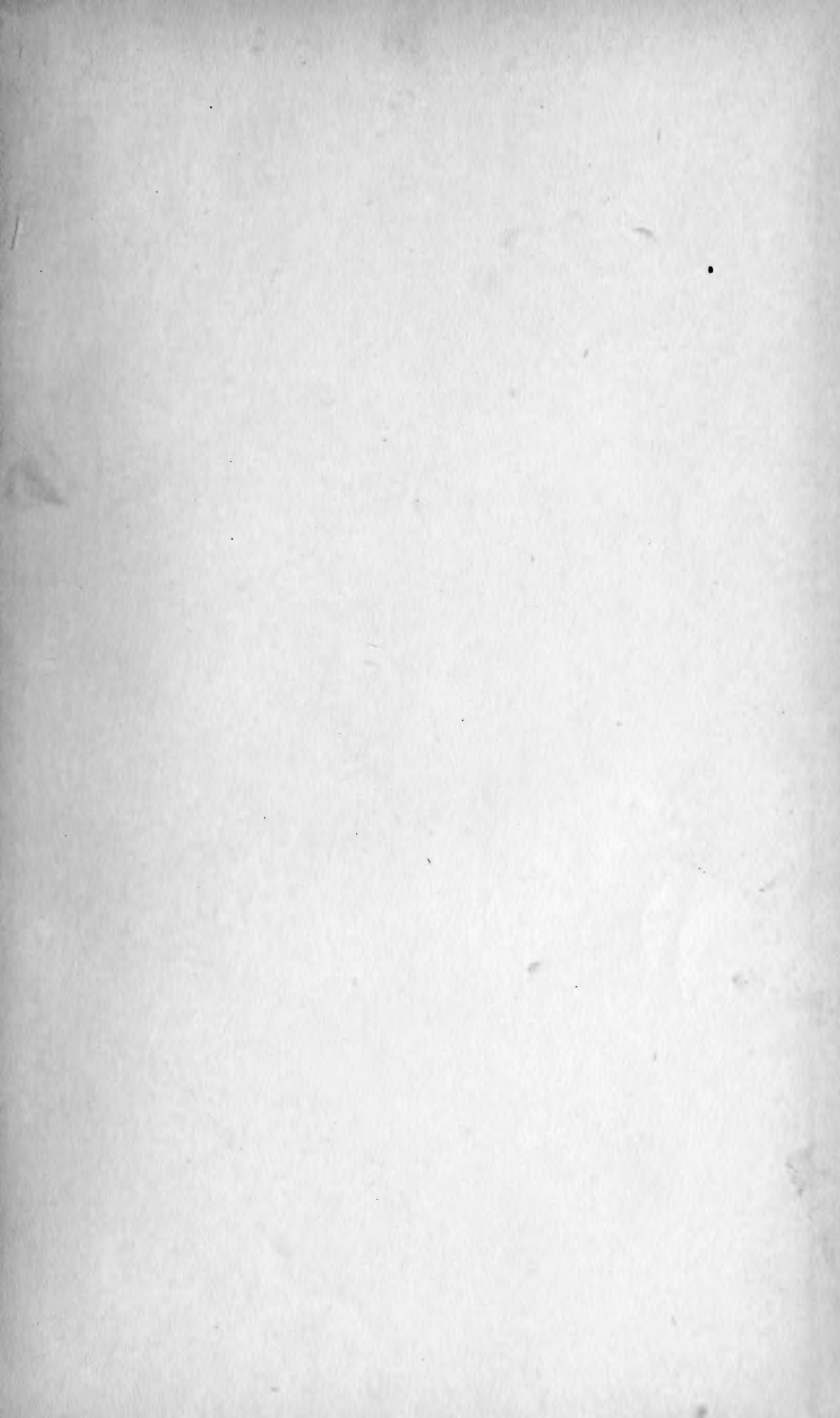
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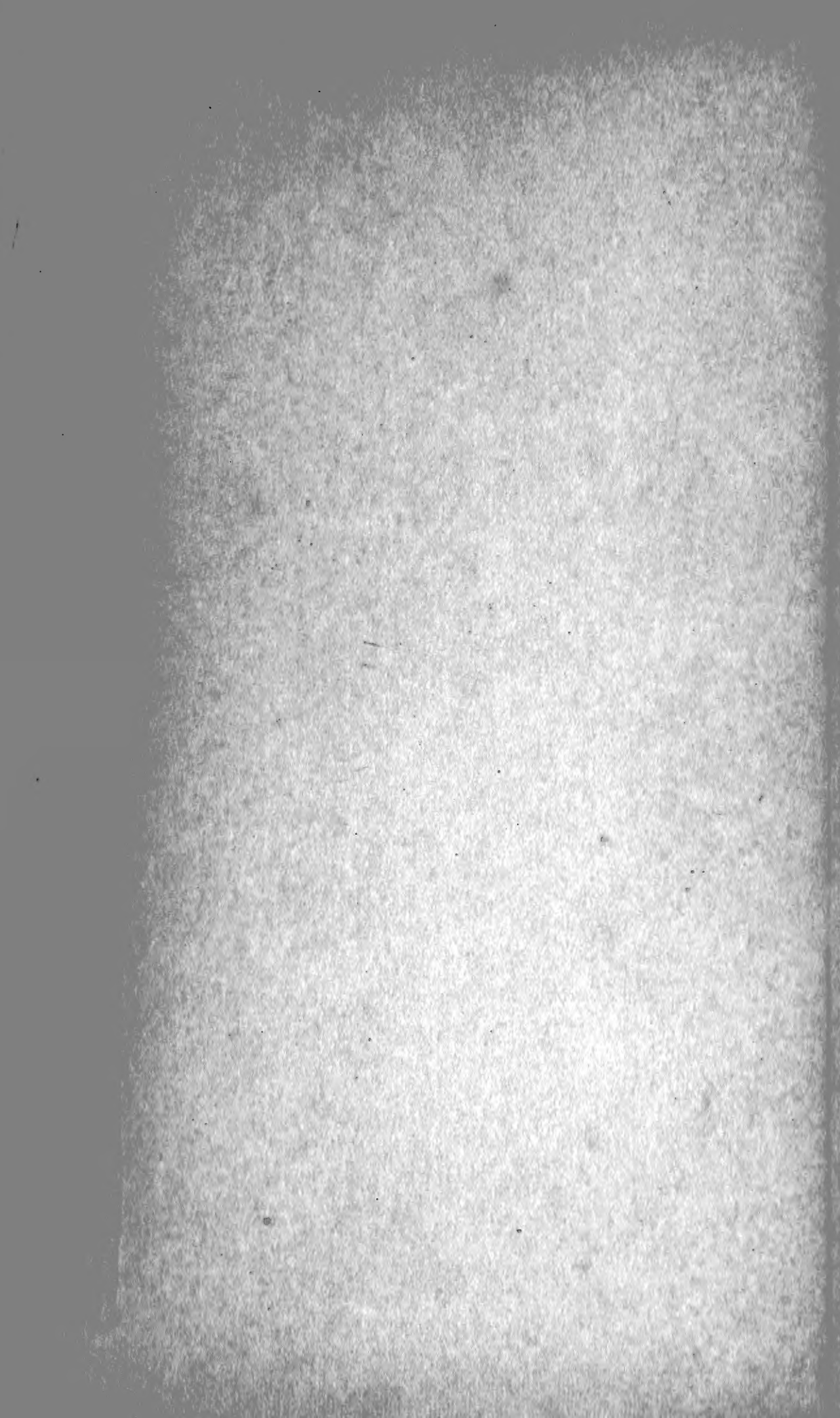
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